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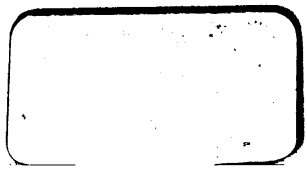

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TRANSACTIONS

OF THE

MEDICAL ASSOCIATION

OF

GEORGIA

FIFTY-FIRST ANNUAL SESSION

1900

ATLANTA, GA.
PUBLISHED BY THE ASSOCIATION
1900

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THE FRANKLIN PRINTING AND PUBLISHING COMPANY
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1900.

"RESOLVED, That this Association shall not be considered as indorsing views of authors of papers published in connection with the Transactions, unless definitely so indorsed in the Proceedings of the Association.

"RESOLVED, That the above resolution appear annually upon the title page of our published Proceedings."

Transactions 1873.

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CONTENTS.

	PAGE.
Officers	4
Annual Committees	5
Minutes	9
Varicose Ulcers—Report of Cases. V. D. Lockhart	59
False Gods and Fake Priests of Medicine. R. P. Cox	63
Ophthalmic Therapeutics for the General Practitioner. A. W. Calhoun	72
The Physician the Nation's Guardian. J. Cheston King	83
Hydrophobia and the Necessity for a Pasteur Institute in Georgia. Henry R. Slack	91
Hemorrhage Occurring after the Menopause. E. C. Davis	101
Nephro-Ureterectomy. George H. Noble	113
Report of Two Cases of Empyema Treated by Drainage and Injections. W. D. Hoyt	127
The Uses of Spectacles. Alex W. Stirling	130
Suggestions on Treatment of Puerperal Eclampsia and Post-Puerperal Kidney Lesions. R. R. Kime	137
Diagnosis and Etiology of Idiopathic Fevers. F. M. Brantly	145
The Continued Use of the Antiseptic and Eliminative Treatment of Typhoid Fever without Any Deaths. T. Virgil Hubbard	151
Typhoid Fever with Report of Cases. W. B. Hardman	162
A Plea for Early Operations in Inguinal Hernia. W. F. Westmoreland	192
Diseases of the Stomach. Edgar J. Spratling	220
A Successful Case of Splenectomy for Marked Congestive Hypertrophy with Remarks. J. Wesley Bovée	228
Treatment of Appendicitis. James B. Morgan	241
Management of Acute Diarrheas of Infancy. Gilman P. Robinson	259
The Necessity for the Use of the Microscope in the Diagnosis of Malaria. E. E. Murphy	274
Brain Traumatisms. Howard J. Williams	282
Some Observations on the Prognosis and Treatment of So-called Catarrhal Deafness. Dunbar Roy	310

PAGE.
The Duty of the Medical Profession and the State to Christian Science Healers. P. R. Cortelyou 324
Chronic Urethritis and Complications—their Pathology and Rational Treatment. L. Amster 329
Pneumonia and its Treatment. W. E. Saunders. 344
Treatment of Pneumonia. E. J. Denson 351
What to Send to the Microscopist and How to Prepare It. T. E. Oertel 355
Some of the Uses of Veratrum Viride. J. E. Mangham 367
A Case of Prostato-Cystitis with Complication. J. B. H. Day. 370
Some Points of General Interest in Regard to Drug Addictions. C. C. Stockard 373
Some Points in the Prevention of Infection in Post-Operative Dressing. Wm. J. Little 377
Some Obstetrical Experience. E. L. Bardwell 382
Constitution and By-Laws 385
Roll of Members. 399
Honorary List 414
In Memoriam 415

MINUTES

OF THE

Medical Association of Georgia.

Fifty-First Annual Session.

FIRST DAY—MORNING SESSION.

Atlanta, Ga., April 18th, 1900.

The Association met in the Lyceum Theatre, and was called to order at ten a. m., by the President, Dr. F. W. McRae, of Atlanta.

Prayer was offered by the Rev. W. W. Landrum, D.D., of Atlanta, after which the Honorable F. Colville, of Atlanta, was introduced and delivered the following address of welcome:

ADDRESS OF WELCOME.

Mr. President and Gentlemen of the Medical Profession:

I was asked this morning, as I was coming down on a street-car, why it was that doctors invited a lawyer to make a welcoming address, and before I could answer the question a gentleman sitting near me said: "I can tell you why. They practise so much and look so solemn that the people present would think they were out of humor if they selected one of the doctors to address them."

It is very fitting that a lawyer should welcome physicians to Atlanta. There is a great sympathy between the two professions. They were at one time called the learned professions, but it has been some time since I have heard that adjective applied to us except by ourselves. There is no wonder that there is a certain sympathy between us, because we have frequently been criticized by the general public. Even so far back as Smollett, whom nobody reads now, and we wonder why anybody ever read him then, it was said by him of the two learned professions, and he even included the good preachers, that "lawyers lived upon our troubles, physicians upon our infirmities, and the preachers upon our superstitions." From that day to this, and even farther back than this period, there was some little humor at the expense of the physician. You will doubtless remember that in the third of Chronicles it was stated that Asa, instead of seeking the Lord, sought a physician—and Asa slept with his fathers. Perhaps the public have had some justification for criticizing us. I could never well understand why they called physicians quacks, and yet the public stick to the term. I hardly could understand why they called lawyers liars, yet they stick to this term. I know that we are not liars. To the contrary, I really think lawyers are the most truthful set of men living. The public often misconstrue the good intentions of lawyers, and consequently they class us among common liars. With this criticism of the two professions it is natural that we should band more or less together.

I have been very much distressed by recent developments—I say recent, using the term in a geological sense of say fifty or a hundred years. It looks very much as if the people desire to get rid of us, that is, we lawyers and we doctors. If the principles of socialism are to succeed, property rights will be abolished and the general public

will own all the property. But we lawyers are waiting to see whether it is the people or the trusts that are going to bring about this reform. It seems evident that one or the other ought to own property, and sometimes I have almost been on the verge of shedding tears, thinking that your honorable profession might be abolished. I tell you, gentlemen, the last legislature of Georgia came near doing away with you, which, but for the veto of the Governor, would have enabled the bone-rubbers to have the doctors on the hip. (Laughter and applause.) Just think of it, an ancient and honorable profession like medicine relegated to "innocuous desuetude" by the osteopaths. Not only are you suffering from the advance of that movement, but there is another movement that is going on, and it is in charge of men and women, and it will perhaps some day, as it is already doing to-day, rob you of your just rights.

I have been studying this question of psychic knowledge. When I first heard it sprung I wondered what in the world it could mean. Psychic knowledge claims the power of the objective over the subjective mind. But, I understand now that when the secret of psychic knowledge is fully understood, and when one has perfect faith, and when you have the power of exercising the objective over the subjective mind, disease will be eradicated from the race. If it triumphs, some of you will have to go to plowing. They tell me that there is no such thing as disease. It teaches man how to avoid it, but if disease should creep upon men while asleep, it would rid them of it by the subjective process. Gentlemen, no wonder there is some sympathy between the lawyer and the doctor. With the Georgia legislature, on the one hand, and trusts upon the other, they are trying to do away with our avocations.

Gentlemen, you are welcome to Atlanta, the healthiest city in the United States, yet with more doctors, per cap-

ita, than any city in Georgia. They are all rich. (Laughter.) How they get their money, I do not know, and even if I did, being their lawyer, I am neither competent nor compellable to give testimony. But whatever the laws of the country may do with your profession, I think the people of Atlanta, who never need doctors at all, will always welcome you. We welcome you for yourselves, for your knowledge, for your character, and for the history of your profession. Let us suppose that the professions of law and medicine are abolished, can we abolish the history of this State and blot out the Lumpkins, the Lochranes, the Browns, etc.? You cannot blot out Crawford W. Long, whose great discovery has done more for suffering humanity than the work of any other Georgian that has ever been born. Can they blot out the history of the State that gave us such distinguished men as Dr. Henry Campbell, President of the American Medical Association? Can they blot out the senator and surgeon, Dr. H. V. M. Miller? Can they do away with the reputation of Willis F. Westmoreland, the nestor of Georgia surgery? Blot out the history of these two professions, and you would tear from the pages of history the only chapter that makes the people of Georgia proud of their State. (Loud applause.)

Dr. Samuel C. Benedict, of Athens, responded to the address of welcome as follows:

RESPONSE TO ADDRESS OF WELCOME TO THE GEORGIA MEDICAL ASSOCIATION, ATLANTA, APRIL 18, 1900.

Mr. President and Gentlemen:

In responding, as the representative of this Association, to the cordial welcome so kindly and eloquently spoken to us as we meet again in this great city of our Empire State, I fear that I can but feebly express for the Association our

appreciation of this evidence of your good-will towards us. Coming, as we do, from all parts of the State; coming, as each of us does, to add to the number of our profession at our annual gathering with the hope of further help in our life-work, a welcome so heartily given us by the city which again honors us by asking us within its gates, must awaken in us a deep thankfulness, that, while we have left the glad welcomes of many homes where we are wont to carry cheer and aid, an equal welcome meets us away from home, here among the people and the profession of this busy city.

To say that we have gladly turned our steps to you, that we will regret when the few days we are to be with you are passed, would be but putting in words only too poorly our feelings.

Two score years ago I lived in your beautiful sister city of Marietta, and as I, day after day, watched the engines of the State Road passing to Atlanta and from Atlanta, and learned to know, by the tone of their whistles, whether was coming the old "General, Kennesaw, Nickajack, or Joe Brown," my mind was trained to feel that Atlanta was the place where everything had to go and from which everything that man needed had to come. Later, still as a boy, the armies, which I saw passing through the town, were going to Atlanta, and as I heard again the boom of cannon as I had so often heard it over old Kennesaw, I was told again that it was in Atlanta. And then, when a short time thereafter I passed through here, what was my disappointment to find that the great city of my dreams was in ashes—there was no Atlanta. But as time moved on, phenix-like she arose, and in my manhood I saw again the picture of my boyish thoughts, and it was again the place to which all that was powerful and strong and energetic moved, and from which all that was great and good and worth having came! And now, as once more I stand among you and hear the

words of welcome given to this body of good men, who, like the engines of old, have come to get here more that is needed for man's bodily welfare, I feel the impotent boy of my youth and from my memory's storehouse comes the words of the sweet poet of Bowdoin:—

"What shall I say to you? What can I say
Better than silence is? When I survey,
Friendly and fair, and yet to me unknown,
This throng of faces turned to meet my own,
Transformed the very landscape seems to be,
It is the same,—yet not the same to me.
So many memories crowd upon my brain!
So many ghosts are in the wooded plain!
I fain would steal away with noiseless tread
As from a house where someone lieth dead."
And yet,
I cannot go,—I pause, I hesitate,
My feet, too willing, linger at your gate.

Why it is that Atlanta is especially a welcome place for us, it is not difficult to surmise. It is the Mecca of all men of this great South, the place to which we all turn our eyes and with eagerness make our pilgrimage, when we have any excuse whatever to get away from home. Even as we turn our thoughts hither, we see a city of wonderful business thrift, the center of large business interests, a city where, whether from our homes in the city or country we look to it, we see in the halo of our thoughts many possibilities in the way of progress and business growth.

"All possibilities are in its hands,
No danger daunts it, and no foe withstands!"

And yet not all, even to Atlanta, for as we tread the maze of your streets, as we gaze at your handsome buildings and marvel at the wonderful rapidity of their growth, we come upon an old friend, an old, old friend to many of us, one who has often embraced us and released us, the friend whom

your dailies scoffingly call the "old shack," and we with many others wonder, as did the Psalmist, "O Lord, how long?"

> No possibilities are in its hands,
> No danger daunts it, and no foe withstands!

Thoughtless, frivolous me! As I speak these words of jest there comes the memory of another old friend in the times gone by, a friend whose hand many of us have, with pleasure, grasped; a friend to us all; a friend to this great Southland; a friend who no longer can clasp the hand, but who, standing among you, extends to us in bronze the blessings of peace! He lived and moved among you, he loved the grand old red hills of Georgia, and of no one and of no enterprise has Atlanta greater cause for pride, or for grief at the loss, than in the person of Henry Grady!

Compared with older cities of this State—the historic Savannah with its beautiful streets, its delightful people, its chivalry and its hearty welcome; with Macon, the home of Wesleyan, the home of such hospitality, so many good people and some right good doctors; with Augusta, the city of beautiful trees, broad streets and beautiful women, sister city to Savannah and home of Ford, our first president; with Rome, the home of Battey's life-work; with Athens, where the immortal Long lived and died, and which holds the Alma Mater of so many of Georgia's illustrious men; compared with these and other cities of our State, some may ask what has Atlanta to be proud of? She may not have such beautiful streets as some, so many historic memories as others, no steamboats for excursionists, nor punches for the unwary, but she has that thrift, that tireless energy which makes great cities and which no man, be he cynic or misanthrope, can fail to appreciate and admire. We meet here the foremost men of the South in all professions, and better than all, extending to us the glad hand of welcome,

your noble women, without whom and but for whom all your energies would be but naught; and who have so kindly dealt with our wives, sisters or sweethearts, that carrying home with them sweet memories of cordial, sincere hospitalities received, lovingly appreciating, long for a return to you.

Small wonder then that all associations of men, not only of this but other States, meet here for their deliberations, and this one of the Georgia Medical Association, a band of men second to none in its value to the public weal, comes here of course, willingly, eagerly, thanking you for the welcome again extended to us.

Permit me, sir, to suggest also that in honoring us you honor yourselves. The Georgia Medical Association is composed of men who are an honor to the great profession of medicine; there are many among its members who are the peers of any on this continent in the special work they do in relieving the sufferings of mankind. The communities in which such men reside must profit by their teachings, for the true doctor is a teacher, a teacher of the highest and most valuable book ever placed in the hands of man for his physical good—the laws of man's health. Just think of the wonderful strides made in recent years by the profession in instructing the general public and the officials of cities in the laws of hygiene; think of the marvelous lowering of the death-rate of various diseases. The medical profession of Georgia is an honor to the State and honors those who honor her. Among the members of the profession in this city are many men of national reputation, and of them, as well as of her citizens who advance its interests and wealth by their business tact and energy, you have reason to be proud.

In one thing, however, men and women of this city, and of the State, you must help us—we need your help. There is springing up in different cities of this State a class of men

without any knowledge of this human body of ours, or its laws of health and disease, who, claiming the power to heal all diseases, many without medical or surgical means, some with various methods of deception (and so known to them), impose upon the ignorant, be he the uneducated ignorant or the ignorantly educated. Their danger to mankind lies in what *they do not do,* rather than in what they do, but, unfortunately, until some loved one dies, or contracts a contagious disease as a result of an *omission* by these quacks, the average man does not stop to think. These impostors of the healing art do not in any way, financially or otherwise, hamper the medical profession, but we stand aghast at the credulity of the victims, and the menace to the health of communities made probable by men who know not how, nor care, to observe the known laws of hygiene as relating to contagion and infection. It is in the uprooting of this evil that we need the help of the laity. You men and women must bring about laws to stamp out this class of men, for except by warning and advice we, as a profession, are impotent to help.

Meeting again, Mr. President, in this city, let us not forget, nor allow these good people to make us forget, our duties to ourselves. We have come from our business and homes ostensibly that the teacher may be taught. We are supposed to have come here to increase our knowledge pertaining to the affairs of health and disease. Let us to work in earnest, and while with heartfelt gratefulness we acknowledge and accept to enjoy to its uttermost the hearty welcome extended to us by this city, let us remember the reciprocal of the old adage, that "all *play* and no work makes Jack a dull boy."

May this meeting so redound to our credit by the way we use our welcome and our opportunities, that Atlanta shall want us again—and that we may not be ashamed to come.

We are glad, Mr. Speaker, to be here among you, we shall regret to leave you, and we thank you most sincerely for your kind words of welcome.

The President then introduced Dr. W. D. Maddox and Dr. F. M. Brantley, two of the oldest members of the Association.

He also invited the ex-Presidents of the Association to occupy seats on the rostrum.

Dr. W. S. Elkin read the following report, as Chairman of the Committee of Arrangements.

At the last meeting of the Georgia Medical Association, which occurred in Macon, I was requested by Dr. A. W. Calhoun, of this city, to extend to this Association an invitation to hold its next meeting in Atlanta, with the assurance of Dr. Calhoun if I did this, he would act as Chairman of the Committee of Arrangements. I complied with my part of the contract and extended the invitation, which was accepted, thinking, of course that Dr. Calhoun would carry out his part of the agreement. A few weeks after the adjournment of the meeting in Macon, Dr. McRae, our president, approached me and said: "I want to appoint you as Chairman of the Committee of Arrangements." I immediately referred him to Dr. Calhoun, saying that he had already agreed to act in this capacity. Dr. Calhoun was approached on the subject, and said that I was mistaken; that he only agreed to serve on the committee, but not in the capacity of chairman; therefore I was compelled, under these circumstances, to assume the duties of this position.

I beg leave now, in behalf of the Committee of Arrangements, to submit the following report for the present meeting of the Association:

All the visiting doctors and members of this Association are cordially extended an invitation to visit at any time the following social and business clubs of this city:

Capital City, corner of Peachtree and Ellis streets.

Colonial, corner of Peachtree and Cain streets.

Fulton, in the Austell building on Forsyth street.

These clubs open in the morning about eight o'clock and continue in full blast until twelve or one o'clock at night. The envelopes which will be handed you by Mr. Randell, Secretary of this committee, when you register with the Treasurer, contain tickets

to these several clubs, the presentation of which at the club will entitle you to all the privileges and benefits of the regular members of the club.

This evening, at eight o'clock, Dr. McRae, President, will give a Bohemian Smoker at the Piedmont Driving Club, which the visiting doctors and members of this Association and their wives are cordially invited to attend. Free transportation to and from the Piedmont Driving Club has been tendered the members of the Association by the Consolidated Street Railway Company of this city. These special cars will leave the Equitable building, at the corner of Pryor and Edgewood avenue promptly at 7:30 o'clock this evening. Your badge, which you will also secure from the Secretary of the Committee of Arrangements, will be all that is necessary to entitle you to a free ride to and from the Piedmont Driving Club. Do not fail to take your wives to this entertainment.

On Thursday evening, at nine o'clock, the local members of the medical profession will tender the members of the Georgia Medical Association a banquet at the Kimball House. The banquet begins promptly at nine o'clock, and the members of the Association are requested to meet promptly at room No. 104, Kimball House, at 8:30, Thursday evening.

Any visiting members, desiring any information, can receive the same by calling upon any member of the Committee of Arrangements or any of the local profession of this city. Committee of Arrangements will be recognized by their red badges; the local profession by white badges, and the visiting physicians by blue badges.

The President of the Board of Trustees of the Grady Hospital invites any of the visiting members of the Association to visit the hospital during their stay in the city at any time that suits their convenience. The regular visiting hours are from two to four o'clock, but the President of the Board of Trustees has authorized the superintendent to allow members of the Association to visit the hospital at any time during the day from 8 a. m. to 6 p. m.

The Secretary of the Committee of Arrangements will also issue tickets to the Bohemian Smoker and banquet. These tickets are only issued to the members of the Medical Association of Georgia, and must be contersigned by the Chairman of the Committee of Arrangements and presented at the door of each of these entertainments.

The President: The next thing in order is the report of the Committee on Program.

Dr. Hardon, the Chairman of this Committee, made a brief report stating that the programs speak for themselves. A preliminary program was sent out before the meeting, but the complete program could be found on the table of the Treasurer.

The program, as printed, was adopted. It is as follows:

FIRST DAY, WEDNESDAY, APRIL 18.

MORNING SESSION, 9:30 O'CLOCK.

Prayer by Rev. W. W. Landrum, D.D., Atlanta.
Address of Welcome by Hon. Fulton Colville, Atlanta.
Response by Dr. S. C. Benedict, Athens.
President's Annual Address.
Report of Committee of Arrangements.
Report of Committee on Program.
Report of Committee on Publication.
Report of Committee on Necrology.
Report of Committee on New Members.
Report of Committee on Medical Legislation.
Report of Committee on Constitution and By-Laws.
Report of Committee on Prize Essay.

1. Varicose Ulcer of the Lower Extremities, V. D. Lockhart, M.D., Mayesville.
2. False Gods and Fake Priests of Medicine, Ross P. Cox, M.D., Rome.
3. Ophthalmic Therapeutics for the General Practitioner, A. W. Calhoun, M.D., Atlanta.
4. The Physician the Nation's Guardian, Cheston King, M.D., Atlanta.
5. Hydrophobia and the Necessity of a Pasteur Institute in Georgia, Henry R. Slack, M.D., LaGrange.

AFTERNOON SESSION, 2:30 O'CLOCK.

6. Hemorrhage Occurring at the Menopause, E. C. Davis, M.D., Atlanta.
7. The Fads and Fashions of the Medical Profession, J. C. LeHardy, M.D., Savannah.

8. The Influence which our Improved Sanitary Methods have had toward Stamping Out Diseases, Marcus F. Carson, M.D., Griffin.
9. A Few Remarks on Gonorrheal Infection, W. L. Champion, M.D., Atlanta.
10. Nephro-ureterectomy, Geo. H. Noble, M.D., Atlanta.
11. Report of Two Cases of Empyema, Treated by Drainage and Injections, W. D. Hoyt, M.D., Rome.
12. The Use of Spectacles, A. W. Stirling, M.D., Atlanta.
13. Report of Cases, C. D. Hurt, M.D., Atlanta.

SECOND DAY, WEDNESDAY, APRIL 19.

MORNING SESSION, 9:30 O'CLOCK.

Reading of Minutes.
Application for Membership.
Report of Board of Censors.
Reports of Special Committees.

14. Some Pertinent Thoughts Deduced from 276 Abdominal Sections, W. W. Stewart, M.D., Columbus.
15. Suggestions as to Treatment of Eclampsia and Post-Puerperal Kidney Lesions, R. R. Kime, M.D., Atlanta.
16. The Diagnosis and Etiology of Idiopathic Fevers, F. M. Brantley, M.D., Senoia.
17. The Continued Use of the Antiseptic and Eliminative Treatment of Typhoid Fever without any deaths, T. Virgil Hubbard, M.D., Atlanta.
18. Typhoid Fever, Report of Cases with Comments, W. B. Hardman, M.D., Harmony Grove.
19. Surgical Problems, W. F. Westmoreland, M.D., Atlanta.
20. Diseases of the Stomach, Edgar J. Spratling, M.D., Forsyth.
21. Two Malignant Cases of Werlhoff's Disease, Arthur C. Davidson, M.D., Sharon.

AFTERNOON SESSION, 2:30 O'CLOCK.

22. A Successful Case of Splenectomy for Marked Congestive Hypertrophy, J. Wesley Bovee, M.D., Washington, D. C.
23. The Treatment of Abscess of the Appendix, R. M. Harbin, M.D., Rome.
24. The Treatment of Appendicitis, John B. Morgan, M.D., Augusta.
25. The Management of the Acute Diarrheas of Infancy, Gilman P. Robinson, M.D., Atlanta.
26. Excess of Uric Acid and its Relation to Diseased Conditions, Katherine R. Collins, M.D., Atlanta.

27. The Necessity for the Use of the Microscope in the Diagnosis of Malaria, E. E. Murphy, M.D., Augusta.
28. Brain Traumatisms, Howard J. Williams, M.D., Macon.

THIRD DAY, FRIDAY, April 20.

MORNING SESSION, 9:30 O'CLOCK.

Reading of Minutes.
Applications for Membership.
Report of Board of Censors.
Report of Auditing Committee.
29. Some Observations on the Prognosis and Treatment of Catarrhal Deafness, Dunbar Roy, M.D., Atlanta.
30. Some Diagnostic Symptoms and the Treatment of Certain Lesions of the Central Nervous System, F. M. Ridley, M.D., LaGrange.
31. The Duty of the Medical Profession and the State to Christian Science Healers, P. R. Cortelyou, M. D., Marrietta.
32. Chronic Urethritis and its Complications, their Pathology and Rational Treatment, L. Anister, M.D., Atlanta.
33. Pneumonia and its Treatment, W. E. Saunders, M.D., Arlington.
34. The Treatment of Pneumonia, E. J. Denson, M.D., Allentown.
35. What to send to the Microscopist and How to Prepare it, T. E. Oertel, M.D., Augusta.

Election of Officers at one o'clock.
Selection of place of meeting.

AFTERNOON SESSION, 2:30 O'CLOCK.

36. The Eustachian Tube, like the Liver, is Accused of Many Sins, Arthur G. Hobbs, M.D., Atlanta.
37. Some of the Uses of Veratrum Viride, J. E. Mangham, M.D., Reynolds.
38. The Value of Saline Transfusion in Surgical Work, W. S. Goldsmith, M.D., Atlanta.
39. A Case of Prostato-Cystitis with Complications, J. B. H. Day, M.D., Social Circle.
40. Some Points of General Interest in Regard to Drug Addictions, C. C. Stockard, M.D., Atlanta.
41. A Clinical Review of Some Cases in Private Practice, T. E. Mitchell, M.D., Columbus.
42. Some Precautions Against Infection in Post-Operative Dressings, Wm. J. Little, M.D., Macon.

43. Some of the Causes and Management of Neurasthenia, Wm. S. Cox, M.D., Gainesville.

New business.

Unfinished Business.

Dr. M. B. Hutchins, of Atlanta, chairman of this committee, read the following report.

REPORT OF PUBLICATION COMMITTEE.

Mr. President:

The chairman of this committee looked after the publishing of the Transactions. Copy for the printers was furnished by the Secretary of the Association, with a marked program showing what papers were entitled to publication.

Dr. H. J. Williams, of the committee, and President of the Association at the 1899 meeting, was in position to give acceptable advice and suggestions to the chairman. The Atlanta members of the committee met and decided upon certain details of the publication, aided by information furnished by the Secretary of the Association and letters of the retiring President. The chairman wrote Dr. Lyle of the committee, asking him to meet us at any time he could, but did not hear from him.

References in papers to proprietary articles, or commercial schemes, were ordered left out as far as discoverable. Some papers were edited a little and one was excluded—on certain information.

The Transactions volume is over twice as large as that of 1898. The prices of printing materials had largely advanced, but the bill for publication was at the same rate as for 1898. If the Transactions were issued later than usual, the chief cause of the delay was a misunderstanding about some illustrations.

On motion, the report of the committee was adopted.

The next thing in order was the report of the Committee on Necrology, and in the absence of Dr. Clark, the Chairman, the report was read by the secretary, as follows:

REPORT OF COMMITTEE ON NECROLOGY.

Since the Association last convened the grim monster has again invaded our ranks and claimed as his victims two of our brightest and most promising members, Dr. William B. Gilmer, of Macon, and Dr Benjamin R. Doster, Jr., of Blakely; and this Association

is called upon to mourn their irreparable loss. The accompanying memorials express the loss which this Association and their several communities have sustained.

Your committee also beg to report the name of Dr. C. H. Colding, of Savannah, who died in April, 1896, and whose name has not been added to our list of honored dead. We also wish to add the name of Dr. C. M. McDonald, of Leesburg.

While your committee offer no set resolutions, yet they recommend that this Association instruct the Secretary to express to the families of our lamented brothers the sincere condolence of this Association and furnish each of them a copy of the memorial tribute.

Respectfully submitted,

M. A. CLARK,

Chairman Committee on Necrology.

IN MEMORIAM.

DR. BENJAMIN ROBERT DOSTER, JR.

Born in Blakely, Ga., October 24, 1873. Died in Atlanta, Ga., October 30, 1899.

His early education was had at the Blakely Institute, where he completed the course in June and in September, 1890, entered the State University at Athens, taking an elective course of three terms, preparatory for the study of medicine, which profession he had chosen as his life-work. In January, 1892, he entered the office of his honored father as a student in medicine, and any young man may count himself fortunate to have had a preliminary training at the hands of so painstaking a physician as his distinguished father. From the office of Dr. Doster, at Blakely, he went to the University of Virginia, and took a three months' summer course in anatomy, physiology, histology and chemistry, thus laying a broad and liberal foundation for beginning his regular college course at the Jefferson Medical College, at Philadelphia. After taking the prescribed three years graded course in this justly celebrated institution, he graduated M.D. in June, 1895. His class standing, as well as the confidence and esteem in which he was held by his teachers, easily won for him his election as intern in the Jefferson Hospital, and this position was offered him; but with these honors surrounding him from his alma mater, his noble young heart turned back to his devoted father at home, who was carrying the burdens and cares of a large and constantly growing practice, and the devoted son laid aside the honors so temptingly offered, and turned his face

toward the home of his childhood, where he could share with his honored father those responsible cares of a heavy practice, which were already pressing too strongly upon him. After passing a very creditable and satisfactory examination before the State Examining Board, he entered at once upon the arduous duties imposed upon the followers of the medical profession, as a co-partner of his distinguished father.

His father and intimate friends were not the only ones who welcomed him back to his native town, the whole community met him with outstretched arms, and the young doctor was at once taken into the hearts and homes of his people; and at least for once in the world's history, a "prophet had honor in his own home."

Being anxious to fulfill the long-cherished hopes and expectations of a loving father and legions of friends, as well as to gratify his own ambition to serve his fellowman, he bent every energy to discharge the duties of his new position. He was soon recognized as a man of merit, and the young doctor rapidly grew in favor with all classes, who were not slow to see in him the "coming man" in all his section of the State. Not alone with the laity and the best people of the community, did he rapidly carve his way to the front, but the profession, as well, recognized in him one of the ablest and brightest young members of the profession, and withal, one of the finest characters in all Southwest Georgia. His constant calls in consultation, and at considerable distances, attested his professional standing among those capable of judging. His appointment as surgeon of the Central Railroad at Blakely was but another expression of how he stood in the estimation of men who recognize true merit.

He was a member of the American Medical Association, as well as the Medical Association of his own State, and it can be truthfully said of him, that no junior member of these associations stood higher, or bid fairer to become useful to the profession at large. The Medical Association of Georgia could ill afford to loose a young man of such brilliant and useful promise.

Full of the ardor of a young man in love with his profession, he responded to every call made upon him; he did not stop to question whether he was to receive a substantial reward for services rendered, or whether his reward was to come of that higher and nobler consciousness of duty done, for sweet charity's sake, it was one and the same to him. Working thus night and day, wet or dry, through heat and cold, and taking no rest, he presumed too strongly upon his vigorous constitution, which gave way under the constant strain, and in the brief period of five short years he literally fell in harness; the silver cord was broken, and he died a shining martyr to his profession.

It is always sad to know of the death of any useful professional brother, even though he may have "finished his course, kept the faith, and fought the good fight"; but oh! how much more inexpressibly sad to see the ambitious, joyous, hopeful young man of yesterday but the dust of earth to-day! Opportunities of noble work gone, possibilities of a fruitful and successful life snatched away, hopes of usefulness and good deeds to suffering humanity unfulfilled. The sunrise period of our young brother's life painted a beautiful rainbow of promise upon a bright clear sky of usefulness to his day and generation. While he had won the confidence and esteem of the better class of his people, and was doing a large and lucrative practice, yet the poor in this world's goods found in him a friend and benefactor, and it was always the aim of his life to carry sunshine and joy into the homes of sadness and gloom; and it was this tender, sympathetic, genial nature, as well as the skillful professional bearing, which won the hearts and confidence of his clients, and tied them on to him with the silver cords of fellowship and love.

"Far may we reach before we find
A heart so manly and so kind;
But not around his honored urn
Shall friends alone and kindred mourn;
The thousand eyes his care had dried
Pour at his name a bitter tide;
And frequent falls the grateful dew
For benefits the world ne'er knew."

His character and life embraced all the combined qualities of the true and loyal friend, dutiful and loving son, good citizen, high-toned and human physician, and best of all, a Christian gentleman. While he was full of life and laudable ambition, as every young man should be, he did not fail to recognize the fact that he was but human, and that he owed his allegiance to the Supreme Master of the Universe. In the last hours of his life, when he saw that the end was near, with true Christian fortitude and resignation, he said, "the Lord knows best," and when asked by his devoted father, just as he was entering the valley and shadow of death, as to his spiritual condition and hopes for the future, replied in a cheerful triumphant voice, "that is all right."

The writer of this memorial would do violence to his own feelings, if he should close it without expressing a feeling of profound sympathy for the father of this young man, and in doing so, he is fully convinced that he simply echoes the feelings and sentiments of every member of this Association. Dr. B. R. Doster's name has been pleasantly and happily associated with all that is

noble and true in this Association for thirty years or more, and our hearts go out to him in tender love and sympathy. Dr. Doster was justly proud of his boy, and had built largely on leaning upon his strong and gifted son, as he approached the sunset period of his life. God bless you, my brother, and may we all, as Bob did—

"So live that when thy summons come to join
The innumerable caravan that moves
To that mysterious realm where each shall take
His chamber in the silent halls of death.
Thou go not like the quarry slave at night,
Scourged to his dungeon; but sustain'd and sooth'd
By an unfaltering trust, approach thy grave.
Like one who wraps the drapery of his couch
About him, and lies down to pleasant dreams."

Macon, Georgia. K. P. M.

C. H. COLDING, M.D.

By M. A. Clark, M.D., Macon, Ga.

Dr. C. H. Colding was born in Barnwell, S. C., March 16, 1832. Having chosen the practice of medicine as his life-work, he entered the office of Dr. John Ogilvie, of his native place, and remained there till prepared to enter college. In the fall of 1852 he entered the Medical College of Geogia and completed his first course of lectures the following spring. He was then offered and accepted a position in the hospital at Savannah, Ga. He filled this position with no little credit to himself and benefit to the hospital till the summer of 1854.

During his services as interne in the Savannah Hospital Dr. Colding met, wooed and won Miss Letitia F. Pooler, whom he married August 22, 1854. In the following autumn he entered the Savannah Medical College, and was graduated Doctor in Medicine in the spring of 1855.

In 1857 the deceased moved to Vienna, Dooly county, Georgia, and spent five busy, active years in the practice of his chosen profession.

Desiring a larger and better field of labor, Dr. Colding located in Hawkinsville, Georgia, in the early part of 1862. For twenty-one years the people of that town and vicinity enjoyed the benefit and comfort of his counsel and skill. Although often weary and worn, himself really in need of the physician's skill, he still answered every beck and call, until, at last, the strong form, the indomitable will, the kind friend, the skillful physician, must yield to the inevitable. He must take a much and long needed rest, lest the icy claws of death tighten their grasp and claim that noble man for his victim.

How often had the sufferer been freed from pain, the burning brow been cooled, the despondent and aching heart cheered by that faithful physician; but now he must needs seek comfort and cheer, for failing health has been neglected already too long!

He selected as a place of rest the Isle of Hope, quiet, restful, and suggestive of that "Hope, like a cordial, innocent though strong, man's heart inspirits and serenes."

His recuperative powers rapidly asserted themselves, and in another twelve months he was yearning for the work he so reluctantly gave up and was making ready to return to the friends of other days, when he was persuaded to accept the position of House Physician in the Savannah Hospital.

In June, 1884, Dr. Colding assumed the duties of House Physician in the Savannah Hospital and labored earnestly and faithfully till April, 1894, when he resigned on account of failing health. He at once went to Pooler, Ga., a little village near by, hoping that the change would benefit him. Alas! the hopeful, buoyant nature could no longer withstand the ravages of disease, and the once strong frame was made prostrate by death.

On April 17, 1894, Dr. C. H. Colding received his last call to go to "that bourne from which no traveler returneth," and bravely did he answer. He lacked but six years of having completed his three score years and ten.

Who can tell how many noble deeds done, how many sad hearts cheered, how many lives made more useful by that long, unselfish life?

On motion, the report was referred to the Committee on Publication.

The report of the Committee on New Members being the next in order, the president stated that Dr. Westmoreland, the chairman of the committee, had been called out of the city, and would not be able to make the report until to-morrow, when he would speak of other matters of interest to the association. The names of thirty-six new members would be handed to the Board of Censors.

The next thing in order was the report of the Committee on Medical Legislation, which was read by Dr. Baird, of Atlanta, the chairman of that committee.

The report is as follows:

REPORT OF COMMITTEE ON MEDICAL LEGISLATION.

Mr. President:

Your committee asks leave to report that the membership of the Committee on Specific Legislation, appointed at Macon last year, and of the standing Committee on General Medical Legislation, is practically identical, and therefore the two committees have acted as a unit, and their report will cover the conjoined work of both.

In accordance with instructions received from the Association at its last meeting, two bills were carefully drawn and were presented to the legislature in October—one making confidential communications to a physician by his patient privileged communications, and the other, providing for compensation for expert services in the courts of this State.

The chairman of your committee attended the meeting of the State Bar Association at Warm Springs in July last, and there submitted the resolutions of the Medical Association, and also recited the arguments used in their support. The Bar Association received your representative with marked kindness and courtesy and gave to the subject most considerate attention. A committee of five members, consisting of Judge George Hillyer, Atlanta; Mr. T. A. Hammond, Atlanta; Judge Jno. C. Hart, Union Point; Judge F. M. Longley, LaGrange; and Mr. Marion Erwin, Macon, was appointed by the Bar Association to cooperate with your committee. The valuable assistance of this committee, and especially of its able chairman, Judge George Hillyer, is hereby gratefully acknowledged.

The above-mentioned bills were carefully considered by the General Judiciary Committee of the House, before which they were fully discussed by Judge Hilllyer and by members of your committee. A favorable report upon both bills was finally returned to the House, but in consequence of unavoidable delays, and also partly on account of the indifference and inattention of certain members of the House, who had promised to befriend the bills, the report of the Judiciary Committee was made to the House too late to receive attention before the close of the session. Both bills, therefore, failed, but they were not defeated, and there is excellent reason to hope for success, if the matter should be pushed at the next meeting of the General Assembly. In view of the intrinsic merit of the measures, the work already done, the advantage attained by an affirmative report, and the encouragement heretofore received, your committee recommends another earnest effort to secure the enactment of these bills.

Your committee cooperated with the representatives of the several medical colleges of this State in the attempt to secure an amendment of existing statutes, so as to require four years of study instead of three years as at present, as a prerequisite for graduation and as a condition for examination and license by the State Board of Examiners. The bill providing for this change, after a favorable report, was defeated, but the defeat is regarded as only temporary, and this bill will probably soon become a law.

During the last days of the recent session of the General Assembly, a bill providing for the appointment of a State Board of Osteopathic Examiners, despite the strenuous effort and the earnest protests of your committee and of other members of the medical profession, was successfully rushed through both branches of the General Assembly. As strange as it may seem, as incomprehensible as it is, this measure was favored and so reported by the Committee on Hygiene and Sanitation, of the House, which committee is largely composed of medical practitioners.

When the facts relating to this remarkable transaction were made known by your committee, a great number of protests against such mischievous and debased legislation were received from all parts of the State, and a large delegation of the local medical profession joined your committee in a determined resistance to the consummation of this unworthy scheme. After a patient hearing, the Governor vetoed the bill, thereby saving the State from discredit and the medical profession from undeserved degradation. In explanation of this courageous and commendable act, Governor Candler said:

"I withhold my approval from this bill because, aside from the objection that it advertises one particular school—the American School of Osteopathy of Kirksville, Mo.—there is no necessity for such an enactment. It provides, among other things, for the creation of another medical examining board in the State. There are already three of these boards, and any graduate of any lawfully chartered medical college may go before either of them, present his diploma and be examined.

If he passes an examination satisfactory to the board—a board the members of which are selected because of their eminence in the profession and their skill in medical science, he is authorized to practice medicine anywhere in this State and apply any treatment he may deem best, including the methods of osteopathy. If he is not a graduate of a reputable medical college and cannot pass a satisfactory examination in the usual branches of medical education, he ought not to be licensed to engage in the practice of medicine."

Thus, Mr. President, closed the first chapter in the history of the attempted incursion. Your committee desires, however, to emphasize the patent fact that this move is only the beginning, and not the end, of these raids upon salutary statutes, and to admonish every individual member of this Association, and every respectable medical practitioner outside of our membership, as well as all good citizens everywhere without the ranks of the profession, that eternal vigilance and personal direct effort is essential to forefend our institutions against insidious assaults, which may mean, before we fully realize the fact, great, perchance permanent, injury and, possibly, utter destruction of some of our most trusted and important safeguards.

Under the plan providing for a standing committee of this Association on medical legislation, the membership of the committee is distributed over the State; and the establishment of a subcommittee, in every county, to cooperate with the general committee, has been proposed as a means of effective organization. The experience of your committee has demonstrated the inefficiency of a committee with a scattered membership, as compared with a committee of moderate size, located at the capital, and a change in the plan or the custom of selecting members of this committee is recommended, so that all the members shall reside in or immediately contiguous to Atlanta. Among the several obvious reasons for this recommendation is the impossibility of securing full attendance at committee meetings, and especially, of assembling the committee on short notice during the session of the legislature.

This change would not prevent the ultimate accomplishment of the plan of having one or more special representatives of the committee or auxiliary committees in every county or district, if so elaborate a scheme should prove to be practicable; but such complicated machinery will entail an immense amount of laborious work upon the central committee—more than could probably be undertaken by most men engaged in active practice.

One hundred dollars was appropriated by the Association for the use of this committee. About one half of this amount was expended during the year, as is shown in detail by the attached report of Dr. C. D. Hurt, Treasurer of the Committee. It is requested that the report of the Treasurer be referred to the Auditing Committee.

It is with special pleasure that your committee acknowledges the valuable assistance rendered us by the Attorney-General, Hon.

Joseph M. Terrell, in the preparation of bills and by generous aid and advice upon many important points connected with our work.

Respectfully submitted.

JAMES B. BAIRD, Chairman.
GEO. H. NOBLE,
C. D. HURT,
E. H. RICHARDSON,
W. S. ELKIN,
FRANK M. RIDLEY,
L. G. HARDMAN,
J. B. MORGAN,
THOMAS R. WRIGHT,
J. L. WALKER.

At the conclusion of the report, Dr. Elkin moved that it be referred to a special committee of three to report tomorrow on the recommendations made therein. Seconded and carried.

The president appointed on this committee Dr. Elkin, chairman, Dr. Hiers and Dr. Nicolson.

Dr. Elliott moved that the thanks of the association be tendered to Dr. Baird and other members of the committee for their exceedingly satisfactory work and for the remarkably able report just read, which was seconded and carried by a rising vote.

The president said that he had received several communications on various subjects, which he would refer to the Board of Censors for action.

The president then appointed, as an Auditing Committee, Drs. Howard J. Williams, chairman, Geo. H. Noble, and Willis F. Westmoreland.

There being no reports of special committees to come before the association at this time, the reading of papers was proceeded with.

Dr. V. D. Lockhart, of Mayesville, read a paper entitled "Varicose Ulcer of the Lower Extremity."

Dr. Ross P. Cox, of Rome, read a paper entitled "False Gods and Fake Priests of Medicine."

Dr. A. W. Calhoun, of Atlanta, followed with a paper on "Ophthalmic Therapeutics for the General Practitioner," which was discussed by Drs. Roy, Baird, Cox, and in closing, by Dr. Calhoun.

Dr. Dunbar Roy, of Atlanta, offered the following resolution, which was unanimously adopted:

Resolved. That a telegram be sent to Dr. Hunter McGuire, of Richmond, Va., extending sympathy and fraternal greetings to him from the Georgia Medical Association here assembled and hopes for his speedy recovery from his present severe illness.

Dr. Cheston King, of Atlanta, read a paper entitled "The Physician the Nation's Guardian," which was discussed by Dr. Slack, after which Dr. King moved that a committee of three be appointed by the president to frame a set of resolutions, protesting, in the name of the Medical Association of Georgia, against the passage of the Gallinger Bill, and urging our senators to look into the same and prevent its further passage. The motion was seconded by Dr. Slack and carried.

Dr. Benedict reported favorably, on behalf of the Board of Censors, on the following applications presented for membership and these applicants were declared duly elected:

NAME.	RESIDENCE.	COUNTY.
W. L McBath	Avalon	Franklin.
C J. Jenkins	Edison	Calhoun.
Wm. S. Whaley	Manda, N. C.	Buncombe
H. R. Ingram	Maye	Clay.
John E. Toole	Bainbridge	Decatur.
L. N. Osborne	Canon	Franklin.
A. C. Perry	Covington	Newton.
W. H. Holbrook	Dalton	Whitfield.
W. E. Wilmerding	Atlanta	Fulton.
M. N. Stow	Mineral Bluff	Fannin.
Henry C. Whelchel	Dahlonega	Lumpkin.
J. B. Rudolph	Gainesville	Hall.
W. Howard Perkinson	Woodstock	Cherokee.
J. P. Kennedy	Atlanta	Fulton.

NAME.	RESIDENCE.	COUNTY.
A. S. Chambers	Inman	Fayette.
J. M. Poer	West Point	Troup.
W. S. Hill	Pelham	Mitchell.
B. L. Embry	Villa Rica	Carroll.
S. S. Pittman	Chipley	Harris.
Virgil O. Harvard	Arabi	Dooly.
E. C. Cartledge	Atlanta	Fulton.
E. L. Merrill	Turin	Coweta.
C. K. Sharp	Arlington	Calhoun.
James R. Wells	Stone Mountain	DeKalb.
S. G. C. Pinckney	Atlanta	Fulton.
Claude A. Smith	Atlanta	Fulton.
Chas. E. Boynton	Atlanta	Fulton.
H. M. Fullilove	Athens	Clarke.
Francis Bradley	Atlanta	Fulton.
L. M. Crichton	Atlanta	Fulton.
J. N. LeConte	Atlanta	Fulton.
D. A. N. Thomas	Jersey	Walton.
W. B. Emery	Atlanta	Fulton.
W. Hal Moncrief	Atlanta	Fulton.
W. Monroe Smith	Atlanta	Fulton.
H. R. Marchman	Villa Rica	Carroll.
John A. Corry	Newborn	Newton.
J. W. Ashford	Madison	Morgan.
H. G. Minter	Jakin	Early.
M. R. Hall	Warrenton	Warren.
J. C. Smith	Sand Hill	Carroll.
J. G. Smith	McDonough	Henry.
C. W. Strickler	Atlanta	Fulton.
W. H. Goodrich	Augusta	Richmond.
W. H. Alexander	Blakely	Early.
L. J. Thomas	Dublin	Laurens.
George F. Grun	Dublin	Laurens.
J. L. Weddington	Dublin	Laurens.
J. M. Wall	Laurens Hill	Laurens.
Eugene E. Murphey	Augusta	Richmond.
Paul Favre	Fayetteville	Fayette.
John C. Neely	Herndon	Burke.
A. J. Montgomery	Buff	Gordon.
O. N. Pendergrass	Monroe	Walton.
Wm. E. Campbell	Atlanta	Fulton.
J. M. Anderson	Shiloh	Harris.
T. E. Oertel	Augusta	Richmond.
J. H. Lewis	Graves	Terrell.

NAME.	RESIDENCE.	COUNTY.
S. A. Elder	High Shoals	Oconee.
Ivy W. Moorman	Pekin	Irwin.
J. W. L. Brannon	Pavo	Thomas.
F. Wahl	Savannah	Chatham.
W. B. Crawford	Lincolnton	Lincoln.
John G. Wilkins	Atlanta	Fulton.
H. M. Smith	Edgewood	DeKalb.
J. R. Statham	Americus	Sumter.
W. H. Bishop	Roopville	Carroll.
L. C. Allen	Hoschton	Jackson.
Jas. N. Brawner	Atlanta	Fulton.
Thomas B. Berry	U. S. Marine Hosp. Serv.	
H. M. Lokey	Atlanta	Fulton.
M. F. Benson	Atlanta	Fulton.
Archie Griffin	Luke	Wilcox.
F. S. Rogers	Coleman	Randolph.
Henry M. Hall	Cedartown	Polk.
D. L. Thomas	Eatonton	Putnam.
H. C. Strickland	Mayesville	Banks.
James D. Cromer	Atlanta	Fulton.
W. Jay Bell	Atlanta	Fulton.
Henry W. Terrell	Lagrange	Troup.
J. H. Green	Decatur	DeKalb.
Edgar J. Spratling	Forsyth	Moonre.
F. M. Hubbard	Harmony Grove	Jackson.
S. A. Visanska	Atlanta	Fulton.
R. L. Furse	Monticello.	Jasper.
T. C. Smith	Downville	Whitfield.
J. W. Bowie	Wade	Emanuel.
L. B. Clarke	Atlanta	Fulton.
Eugene B. Elder	Indian Springs	Butts.
James Mayhugh	Sutallee	Cherokee.
R. C. Loyd	Flat Creek	Fayette.
J. J. Foster	College Park	Fulton.
W. C. Bryant	Jackson	Butts.
J. E. H. Ware	Kedron	Fayette.
William L Bullard	Columbus	Muscogee.
C. V. Wood	Cedartown	Polk.
A. L. Fowler	Atlanta	Fulton.
L. C Fischer	Atlanta	Fulton.
L. M. Hobgood	Fairburn	Campbell.
Chas. C. Geer	Atlanta	Fulton.
Marion McH. Hull	Atlanta	Fulton.
Campbell C. King	White Plains	Green.

NAME.	RESIDENCE.	COUNTY.
R. N. Spinks	Cedartown	Polk.
Geo. Y. Pierce	Atlanta	Fulton.
J. T. Rogers	Excelsior	Bulloch.
W. B. Sharp	Atlanta	Fulton.
Jno. H. O'Quinn	Augusta	Richmond.

On motion, the association then adjourned until 2:30 p.m.

FIRST DAY—AFTERNOON SESSION.

The association reassembled at 2:30 p.m., and was called to order by Dr. McMaster, the first vice-president.

Dr. Henry R. Slack, of LaGrange, read a paper entitled "Hydrophobia and the Necessity of a Pasteur Institute in Georgia," which was discussed by Drs. Lockhart, Greenwood, Cortelyou, McMaster, Griggs, and the discussion closed by Dr. Slack.

Dr. A. W. Griggs moved that the president appoint a committee of seven to take under advisement the suggestions contained in the paper of Dr. Slack, which was seconded and carried.

Dr. E. C. Davis, of Atlanta, read a paper entitled "Hemorrhage Occurring after the Menopause," which was discussed by Drs. Bovee, Earnest, Noble, Oertel and Greenwood.

Dr. M. F. Carson, of Griffin, read a paper on "The Influence which our Improved Sanitary Methods have had towards Stamping out Diseases."

Dr. R. R. Kime, of Atlanta, followed with a paper entitled "Suggestions as to the Treatment of Eclampsia and Post-puerperal Kidney Lesions," which was discussed by Drs. Duncan and Bush.

Dr. Geo. H. Noble, of Atlanta, read a paper on "Nephroureterectomy," which was discussed by Dr. Bovee, and in

closing, by Dr. Noble.

Dr. A. W. Stirling, of Atlanta, read a paper on "The Use of Spectacles," after which the association, on motion, adjourned until 9:30 a.m. Thursday.

SECOND DAY—MORNING SESSION.

The association met at 9:30 a.m., and was called to order by the President.

On motion of Dr. Westmoreland, the reading of the minutes of the previous sessions was dispensed with.

The president called for the report of the Committee on New Members. Dr. Westmoreland, chairman, presented the report of this committee, as follows:

REPORT OF COMMITTEE ON NEW MEMBERSHIP.

The value of the work of this committee has passed the experimental stage, as is shown by the numerical and financial results.

Taking the period this committee has been at work and the corresponding time before, we have the following results:

The average of new members has doubled, and eliminating the Cumberland meeting, which, on account of its inaccessibility is not a fair test, the increase would be 2 3-4 as great.

There is no data from which we can estimate the increased attendance, but I am sure that the members who have attended regularly will agree with us that it has more than doubled. The increase in the collection of dues is of course in proportion to the increased attendance. The average fees from new members before the committee began work was $145.00; since their work $360.00. Eliminating the Atlanta and Cumberland Island meeting, the average before the work would be $115.00, and since $460.00.

We think, after reviewing these figures, you will all agree that this committee's work has been a financial success.

Of the 137 counties in the State, there are now only 23, instead of fifty-odd, without active membership in the Association, and we think this will be reduced to 5 or 10 before this meeting is over. We now have a corrected list and addresses of 2945 regular physicians. Since the last meeting we have been in communication individually with each of these physicians, many of them several times, impressing upon them the necessity of organization

with the Association. We have received about two thousand letters and reports from these physicians, which have been checked up and which make our directory correct to date.

We wish to thank the profession of the State for their courteous assistance and cooperation in our work, which has been quite arduous.

On motion, the report was referred to the Auditing Committee.

Dr. Westmoreland presented the report of the Committee on Constitution and By-Laws, as follows:

RPEORT OF COMMITTEE ON CONSTITUTION AND BY-LAWS.

This committee was created for the purpose of revising the resolutions, amendments, etc., that are introduced each year, expunging such as conflict with the Constitution or are irrelevant, and placing the others in their proper place in the Transactions. This was to prevent their being buried in past Transactions and place them where they could be easily found without going through years of Transactions. But as usual all resolutions and amendments were buried in the Transactions. The president was never notified and did not know there was such a committee until the late arrival of the Transactions, so this committee was never appointed; the President asked me to whip this material into shape.

The Committee on Prize Essays was also lost to sight, but fortunately it had been appointed.

A still more serious fault is the fact that many members who joined last year, but who were not present, have never received any information of their election. The majority of those joining, whether present or not, have not received their Transactions, and none of their names have been placed on the roll of membership.

It is impossible to keep new members in the Association, when they are treated in this manner, or to build up an Association when the officers, who should attend to these matters, conduct their business in such a slipshod manner.

On motion, this report was referred to the Board of Censors.

The report of the Committee on Prize Essays was likewise read by Dr. Westmoreland, and, there being no ob-

jection, it was referred to the Board of Censors for action. The report was as follows:

REPORT OF COMMITTEE ON PRIZE ESSAYS.

Mr. President and Members:

Dr. Le Hardy in his Presidential address at the Thomasville meeting in 1881 recommended the revival of the Committee on Prize Essays, instituted in 1873. (See page 39, Transactions, 1881.) This address was referred to a committee to examine and report upon.

They recommend that a Committee on Prize Essays, consisting of five members, be appointed, and that they offer three prizes as follows: (See page 30, Transactions, 1881.) First prize of $50.00 for the best essay upon medicinal plants, native or foreign, growing within the limits of the State, their use in practice, natural history, cultivation and preparation for use and for market. Second and third prizes of $25.00 each for the best essays upon any subject connected with medical, hygienic or surgical science, to be awarded to the authors of those essays proving most meritorious, provided they are deemed worthy of a prize by the committee. (See page 39, Transactions, 1881.)

The fund created at this time and the accrued interest now amounts to $151.69, and is in the hands of this committee.

Your committee is sure there will be no competition for the first prize, through lack of interest in the subject; and to issue a circular to each physician in the State, calling his attention to this subject, is impractical and would consume the fund in a year or two. With its present environments we find it impossible to suggest any plan that will excite interest in this subject. It is equally impossible to return this fund to the subscribers, as no one who has handled this fund can agree as to who, in what amounts, or how much has been subscribed. There is no better illustration than this fund of the haphazard manner in which the minutes and business of this Association have been kept.

We suggest that the best plan for the present will be to cover this into the treasury as a loan. If this plan meets with the approval of the Association, we will prepare a plan that will make the transaction one of record.

The president announced, as the committee to consider the advisability of establishing a Pasteur Institute in Georgia, Drs. H. R. Slack, chairman; E. C. Davis, St. J. B. Graham, J. R. Garlington, J. H. McDuffie, C. A. Smith and C. D. Hurt.

The president read a letter from Dr. Mark O'Daniel, regretting his inability to attend and wishing for a successful meeting.

Dr. F. M. Brantley, of Senoia, contributed a paper on "The Diagnosis and Etiology of Idiopathic Fevers," which was read by Dr. Williams for the author.

Dr. T. Virgil Hubbard, of Atlanta, followed with a paper entitled "The Continued Use of the Antiseptic and Eliminative Treatment of Typhoid Fever, without any Deaths."

Dr. W. B. Hardman, of Harmony Grove, read a paper on "Typhoid Fever: Report of Cases, with Comments."

These papers were jointly discussed by Drs. Harbin, Duncan, Oertel, Holt, Garlington, Todd, Baird, Bush, Davidson, Hawkins, Graham, Greenwood, Stockhard, Denmark, Robinson, Bryant, and the discussion was closed by Drs. Hubbard and Hardman.

The Board of Censors reported favorably upon the reinstatement, as a member, of Dr. J. M. Kelly, of Griffin, upon paying the initiation fee and his indebtedness in full to the association.

On motion, the report was adopted.

The Board of Censors recommended that the name of Dr. W. B. Standifer, of Blakely, be transferred from the honorary to the active membership upon the payment of the initiation fee of five dollars.

On motion, the recommendation of the board was concurred in.

Dr. Willis F. Westmoreland, of Atlanta, read a paper entitled "Surgical Problems."

On motion, the discussion of this paper was postponed until the afternoon session, and made the first order on reassembling.

On motion, the Association then adjourned until 2:30 p.m.

SECOND DAY—AFTERNOON SESSION.

The association reassembled at 2:30 p.m., and was called to order by the president.

The paper of Dr. Westmoreland was discussed by Drs. Quillian, Nicolson, and the discussion was closed by the essayist.

The Board of Censors, at this juncture, in consequence of certain information which it had received as to applicants for membership, desired the Association to reconsider its action taken this morning on their election to membership.

A motion was then made and carried to reconsider the action of the Association of this morning, when Dr. Benedict, in behalf of the Board of Censors, asked for further time in which to make a report on those applications, which was granted.

The President read letters from Senators A. O. Bacon and A. S. Clay, with reference to the Gallinger Bill. These gentlemen stated that they would exert their influence in defeating this bill when it comes up in the Senate of the United States for discussion and disposal.

Dr. Edgar J. Spratling, of Forsyth, read a paper on "Diseases of the Stomach."

On motion of Dr. Westmoreland, Drs. Jas. T. Jelks, of Hot Springs, Ark., and Samuel Lloyd, of New York, were extended the privileges of the floor.

Dr. J. Wesley Bovee, of Washington, D. C., read a paper entitled "A Successful Case of Splenectomy for Marked Congestive Hypertrophy," which was discussed by Dr. Holmes.

The Board of Censors recommended that Dr. W. L. Bullard, of Columbus, be restored to full membership upon the payment of the usual fee.

On motion of Dr. Williams, the recommendation of the board was concurred in.

The report of the Special Committee, appointed to take action on the report made by Dr. Baird, chairman of the Committee on Medical Legislation, was read by Dr. Elkin, as follows:

The committee to whom was referred the report and the recommendations of the Committee on Medical Legislation respectfully reports:

1. In favor of making renewed efforts to secure the passage by the legislature of the two bills introduced at the last session, providing for privileged communications to physicians by patients, and for compensation for expert services in the courts of this State.

2. In favor of so amending the By-Laws that the Committee on Medical Legislation shall consist of six members, who reside at the capital of the State, instead of nine members from different parts of the State.

3. In favor of an annual appropriation from the treasury of the Association of fifty dollars, or so much thereof as may be necessary for the use of the standing committee on legislation.

W. S. ELKIN,
J. L. HIERS,
WM. PERRIN NICOLSON.

On motion of Dr. Westmoreland, the report was adopted.

Dr. J. B. Morgan, of Augusta, read a paper on "The Treatment of Appendicitis," which was discussed by Drs. Holmes, Westmoreland, Bovee, Hardman, Jelks, Gaston, and the discussion closed by Dr. Morgan.

Dr. Spratling offered the following resolutions, which were unanimously adopted by a rising vote:

Resolved, That the Medical Association of Georgia, in behalf of the profession of the State, fully and unreservedly endorse Governor Candler's action in vetoing the Osteopathic Bill; be it further,

Resolved, That a copy of this resolution, with the sincere thanks of the Association, be presented to Governor Candler.

Dr. Gilman P. Robinson, of Atlanta, read a paper on "Management of Acute Diarrheas of Infancy," which was discussed by Drs. Bell, Bailey, Cortelyou, and the discussion closed by Dr. Robinson.

Dr. E. E. Murphey, of Augusta, contributed a paper on "The Necessity for the Use of the Microscope in the Diagnosis of Malaria," which was read by Dr. Oertel, in the absence of the author.

The paper was discussed by Dr. Smith, and Dr. Oertel made the closing remarks for the essayist.

Dr. P. R. Cortelyou, of Marietta, read a paper on "The Duty of the Medical Profession and the State to Christian Science Healers."

On motion of Dr. Foster, the Association then adjourned until 9:30 a.m. Friday.

THIRD DAY—MORNING SESSION.

The association met at 9:30 a.m., and was called to order by the President.

The minutes of the previous sessions were read and approved.

The report of the Auditing Committee was called for, and passed temporarily.

Dr. James B. Baird offered the following resolution:

Resolved, That section 8 of article V. of the By-Laws be so amended as to read thus:

The Committee on Legislation shall consist of six members appointed by the President for a term of three years each, who shall reside at the capital of the State; provided that at the first appointment under this By-Law, two shall be appointed for one year, two for two years, and two for three years. Subsequent appointments to fill expired terms shall be for three years. Vacancies that may occur from other causes shall be filled by appointment for the unexpired term.

It shall be the duty of the Committee on Legislation to take cognizance of any question that may be referred to it by the Association, to resist any undesirable change or the repeal of any salutary medical law of the State, and to frame such bills and assist in securing such legislation as may seem beneficial or necessary, and to aid as far as may be practicable in the discovery and prosecution of all violators of statutes relating directly to the practice of medicine in this State.

After reading the resolution and amendment to the By-Laws, Dr. Baird discussed it and asked the president whether the said amendment would go into effect at this meeting or lie over one year.

The president said that the By-Laws are a part of the organic law of the association, and he would rule that any amendment to the By-Laws as a matter of precedent would be required to lie over for one year, and then be acted upon at the next regular meeting.

Dr. Baird then gave illustrations showing that the By-Laws of the Association had been amended at previous meetings by a two-thirds vote.

After considerable discussion, participated in by Drs. Foster and Baird, and in view of the ruling of the chair, Dr. Foster appealed from the decision of the chair to the Association.

The President then put the question of appeal, and the chair was overruled.

It was then moved that the amendment to the By-Laws be adopted as read. The motion was seconded and carried.

Dr. W. F. Holt, of Macon, offered the following:

Resolved, That section 1, article II. of the By-Laws, be amended to read thus:

By striking out section 1, article II., under caption, "Election of Officers," and inserting in lieu thereof the following, to wit:

"A Nominating Committee shall be appointed at each meeting by the President, to consist of one member from every county represented at the meeting, who shall nominate officers for the ensuing year. The report of the Nominating Committee shall be subject to the action of the Association. When there is more than one representative from a county, the representatives from said county shall select the member of the Nominating Committee."

The amendment was seconded.

Drs. Holt, Daniel, Foster, Bush, Kime, Roy, Hardman, Jones, Duncan and Baird discussed the amendment, some favoring and others opposing its adoption.

Dr. Holt said that he did not expect the resolution or amendment to be operative at this meeting, and he wanted it distinctly understood that it was not with a view of taking any snap judgment that he had offered the resolution to revert to the old method of electing officers.

Dr. Foster moved as an amendment that the resolution become operative at the next annual meeting. This was seconded and accepted by Dr. Holt.

The President then put the motion as amended, and there being some uncertainty as to the vote, a division was called for. There were forty-three who favored the adoption of the amendment, and thirty against it. The president declared the amendment lost, as it did not get the necessary two-thirds vote.

Under the head of "Reports of Special Committees," Dr. J. Lawton Hiers, presented the following:

We, the committee appointed at your last meeting to confer with the medical societies of other States, inviting their cooperation in a memorial to Congress asking an increase in the rank, pay and allowance of the Surgeon-General of the United States Army, beg leave to report as follows:

We have sent copies of the resolution passed by your body to the American Medical Association, to the State associations of all the States, to the Tri-State Association, and to many county and city societies—about 125 in all. We have also placed the resolution in the hands of the President of the United States, the Secretary of War, and the different members of the Senate and House of Representatives in Congress from Georgia.

We have also had drawn a bill, to be introduced in Congress, asking that this increase of rank, pay and allowance become a law. The bill has been placed in the hands of one of the congressmen from this State.

The American Medical Association, at its last meeting held in Columbus, Ohio, took favorable action upon the resolution, and several State medical societies have also taken favorable action and reported the same. Other societies will doubtless take action nd notify us later, inasmuch as their meetings had been held before these resolutions were passed and placed in our hands.

A copy of the resolution has also been sent to a number of

leading medical journals with the request that it be published, and many of them have complied with the request.

We attach to this report a copy of the bill, and a copy of our letter sent to the different societies, also an itemized bill of expenses for cash actually paid out, which we ask that you have audited and ordered paid.

It might not be amiss for us to mention that a bill has already been introduced in Congress asking increased rank and pay of the Adjutant-General of the United States Army, whose duties are certainly no more onerous than the Surgeon-General's.

We respectfully suggest the wisdom of continuing a similar committee to push this important and deserved matter.

(Signed)

R. J. NUNN,
J. B. S. HOLMES,
J. LAWTON HIERS,
Committee.

Dr. Dunbar Roy: I move that the report be adopted, and that the Treasurer of the Association reimburse Dr. Hiers for the money expended in connection with the work of this committee, the total amount being $22.70. Seconded and carried.

Dr. Henry R. Slack then read the report of the Committee on Pasteur Institute, as follows:

REPORT OF COMMITTEE ON PASTEUR INSTITUTE.

We, your committee, beg leave to submit the following report:

We have investigated the Pasteur Institute and Laboratory as thoroughly as our limited time would permit, and are persuaded that the establishment of such an institution in Atlanta would be a great benefit to suffering humanity, not only in Georgia, but throughout the entire South. It would also benefit our profession by furthering scientific investigations.

As to the best method of raising means to establish said institution, or whether it should be in connection with the Grady Hospital or College of Physicians and Surgeons, we have not yet decided. We request that we be granted further time, with power to act, said action to entail no financial obligations on this Association, and that the following resolutions be adopted:

Resolved First, That the Medical Association of Georgia endorse the establishment of a Pasteur Institute and Laboratory in Atlanta and pledge it its hearty support.

Resolved Second, That we will endeavor to secure through legislation fifty per cent. of the dog tax to support said institution when established.

(Signed)

HENRY R. SLACK,
CLAUDE A. SMITH,
ST. J. B. GRAHAM,
J. H. McDUFFIE,
T. R. GARLINGTON,
C. D. HURT.

Dr. Dunbar Roy: I move that the report be adopted. Seconded.

Dr. Eugene Foster: I move that the report lie over for one year, and that the committee be authorized to communicate with the various physicians in Georgia and obtain statistics of the number of cases of hydrophobia which have occurred in the State within the past ten years. Seconded.

After some discussion, participated in by Drs. Roy, Holt, and Lyle, the motion of Dr. Foster was voted down, and the report was adopted.

Dr. W. P. Nicolson offered the following amendment to the By-Laws, which was adopted:

Article XIII. These By-Laws may be changed or amended at any regular meeting by a two-thirds majority of those present and voting.

Dr. James B. Baird: The By-Laws of the association require that an official stenographer shall be appointed each year, and as there is some doubt as to how this matter should be accomplished, I would ask the chair how we may proceed about this matter.

The President: The chair would rule that the association may take up this matter of appointment of an official stenographer at any time.

Dr. Baird then offered the following:

Resolved, That in accordance with By-Law XI., providing for the appointment each year of an official stenographer, that Dr.

Claude A. Smith be appointed for the ensuing year, and that the sum of $100.00 without expenses be appropriated from the treasury of the Association as his compensation.

The resolution was seconded by Dr. Foster and carried.

Dr. J. B. Roberts: I move that a committee of three be appointed by the chair to consider the advisability of recommending the bill of Mr. Speer and to report on it, if possible, at a later session. Seconded and carried.

The President: I will appoint on that committee Drs. Foster, Roberts and Baird.

Dr. Howard J. Williams, of Macon, then read a paper entitled "Brain Traumatisms," which was discussed by Drs. Nicolson, Davidson, Hurt, and the discussion closed by Dr. Williams.

Dr. Dunbar Roy, of Atlanta, read a paper entitled "Some Observations on the Prognosis and Treatment of Catarrhal Deafness," which was discussed by Drs. Slack, Calhoun, Cortelyou, Allen, Lockhart, and the discussion closed by Dr. Roy.

The Board of Censors, through Dr. Benedict, recommended the following resolutions to the Association for adoption:

Resolved, That the Secretary shall immediately after each meeting notify each newly elected member of his election to membership.

Resolved, That the roll shall be made anew alphabetically by the Secretary each year, within ten days after meeting, and furnish this roll to the Treasurer and Publication Committee for publication in the Transactions.

Resolved, That the Treasurer shall keep an alphabetical roll-book of members, showing financial status of each member at each meeting of the Association, and place this roll-book in the hands of the chairman of the Board of Censors.

On motion, the resolutions were adopted.

The Board of Censors offered the following:

Resolved by the Board of Censors, That in our opinion it is a violation of our Code of Ethics for any member of our Association to furnish to the press, otherwise than medical journals, any paper or extract of a paper read before a medical society upon medical topics, unless said society shall order its publication for public instruction.

On motion, this resolution was adopted.

The Board of Censors likewise made the following report:

That the Constitution be so amended that in the event of lack of a quorum of Board of Censors at any time, the President of this Association shall appoint temporarily a sufficient number of members to constitute a quorum of Board of Censors. (To lie over for one year.)

By the Board of Censors:

That in the Constitution, article VIII., section 1, the words "and the Chairman and Secretary shall be designated by the President," be stricken. (To lie over for one year.)

By the Board of Censors:

That the By-Laws, article XI., be so amended as to provide that in the employment of a stenographer for this Association, a member of it shall be selected to do the work if a competent one can be secured.

On motion, this amendment was adopted.

Dr. L. Amster, of Atlanta, read a paper entitled "Chronic Urethritis and its Complications, Their Pathology and Rational Treatment," which was discussed by Drs. Jelks (Hot Springs, Arkansas) and Champion, and the discussion closed by the essayist.

Dr. James B. Baird offered the following:

Resolved, That so much of the By-Laws in relation to the election of officers be repealed—section 1, article II., and that article III. of the Constitution be amended by adding thereto section 4, as follows:

Section 4. The officers shall be nominated by a committee selected each year to consist of one member from every county represented; the Committee to report upon the last day of the session at which they are appointed, said report to be subject to the action of the association. In the event of more than one member from any county being present, then the delegation from such county shall select the member of the Nominating Committee. (To lie over for one year.)

Dr. L. B. Hardman, of Harmony Grove, offered the following:

AMENDMENT TO THE CONSTITUTION.

That section 1, article III. of the Constitution be amended so as to read as follows:

Section 1. The officers of this Association shall consist of one President, two Vice-Presidents, one Secretary and Treasurer, and five Censors.

2. That the word "each," following the words Secretary and Treasurer of section 2, article III. be stricken.

3. That section 5, of article VI. be stricken.

4. That section 3 of article VII. be stricken, and that in lieu thereof we adopt the following:

Article VII., Section 3. That the sections of the Constitution, defining the duties each of the Secretary and Treasurer, continue to apply to the office of Secretary and Treasurer.

Article VII., Section 4. The Secretary and Treasurer shall receive as compensation for his services the sum of $300.00 per annum, which shall be paid out of the funds of the Association; and that said Secretary and Treasurer shall give a bond in the sum of $1,000.00, payable to the Georgia Medical Association, for the faithful performance of his duty. (To lie over for one year.)

Dr. Westmoreland: The Committee on Prize Essays have recommended in their report that the fund be turned into the treasury of the association, and they have prepared the following By-Law, which will show the disposition of that fund:

By-Laws. Article XIII. Prize Essay Fund.

Section 1. The Medical Association this day covers into its treasury, as a loan, the "Prize Essay Fund," amounting to $151.69.

The Association agrees to pay an annual interest of six per cent. on this fund.

Section 2. The Association hereby repeals article V., section 10 of the By-Laws. Section 10 created a "Committee on Prize Essay," consisting of five members appointed by the President, and were custodians of this fund.

Dr. Westmoreland: I now move the adoption of this report, and that so much of the By-Laws as mentioned in it be repealed. Seconded and carried.

Dr. Westmoreland: I move that all correspondence, excepting the financial statement relating to the Prize Essay Fund, be destroyed. Seconded and carried.

The election of officers was taken up, the result being as follows: President, Dr. Samuel C. Benedict, of Athens; First Vice-President, Dr. R. M. Harbin, of Rome; Second Vice-President, Dr. L. V. Lockhart, of Mayesville; Secretary, Dr. Louis H. Jones, of Atlanta. Censors, Dr. W. S. Elkin, reelected for the long term (five years); Dr. F. W. McRae for the short term (three years).

Augusta was selected as the place of holding the next annual meeting; time, third Wednesday in April, 1901.

The Board of Censors recommended that Dr. W. H. Philpot be elected to honorary membership.

On motion, this recommendation was approved.

Dr. Howard J. Williams, chairman, made the following report in behalf of the Auditing Committee:

REPORT OF AUDITING COMMITTEE.

Your Auditing Committee beg leave to report that the labor of auditing the books and accounts of the Association is so great that it is impossible to complete the work and report before the adjournment of this meeting. We find that it is necessary for the committee to secure all papers and books in order to complete its work. We suggest that all books be turned over to the Auditing Committee and that the committee be continued until the next meeting.

On account of the lack of funds in the treasury and the fact that last year's Transactions have not been paid for, we recom-

mend that no honorarium be paid either to the Secretary or Treasurer.

We recommend that the stenographer be paid the usual amount.

(Signed)

H. J. WILLIAMS, Chairman.
GEORGE H. NOBLE.
WILLIS F. WESTMORELAND.

Dr. Westmoreland: I move the adoption of the report as read. Seconded.

The President: As a matter of justice to the Treasurer, Dr. Goodrich, and in view of the statement I made to him before dinner, I feel it would be best to defer the adoption of the report until the afternoon session, when Dr. Goodrich will be present.

Dr. L. B. Hardman: I notice that in the report it is recommended that no honorarium be paid either the Secretary or Treasurer. Personally, I do not think we should expect these gentlemen to work for nothing, and I fell like paying them something, even if we have to collect it.

Dr. Westmoreland: There is no money in the treasury to pay them with, and we do not want to incur any further obligations.

The President: This is a matter of so much importance that it seems we had better make haste slowly. I appreciate very much the thorough work of the Auditing Committee, yet in justice to Dr. Goodrich it would be wise to defer the matter until this afternoon. The members present, however, can take action on the report if they see fit.

It was then moved, as a substitute for Dr. Westmoreland's motion to adopt, that the report of the Auditing Committee be made the special order of business for 3:30 p.m. The substitute motion was seconded, put before the House, and carried.

On motion, the Association then adjourned until 3:30 p.m.

THIRD DAY--AFTERNOON SESSION.

The Association reassembled at 3:30 p.m., and was called to order by the President.

The report of the Auditing Committee was called for and passed temporarily.

Dr. W. E. Saunders, of Arlington, read a paper on "Pneumonia and its Treatment," which was discussed by Drs. Bush, Lockhart, Duncan, and the discussion closed by Dr. Saunders.

Dr. Williams read the report of the Auditing Committee again, and Dr. Foster moved that action on it be deferred until the arrival of Dr. Goodrich, as a matter of justice.

Dr. Hubbard, of Atlanta, moved the adoption of the report of the Auditing Committee. Seconded and carried.

Under the head of "Special Committees," Dr. Foster said: A bill looking to the creation of a State Central Sanitary authority was submitted this morning, and in accordance with a resolution was referred to a special committee consisting of myself, Dr. Baird and Dr. Roberts. Mr. Speer drew the original bill, and it was amended in some parts by the committee of this association. It is not a long bill, and one which has been submitted to the Governor for his views. The Governor states that he approves of it.

This bill is as follows:

SUBSTITUTE FOR HOUSE BILL No. 570.

By MR. SPEER, OF SUMTER.

A bill to be entitled an act to create a Department of Health and Health Officers in this State, and for other purposes.

Section 1. Be it enacted by the General Assembly of the State of Georgia, and it is hereby enacted by authority of the same, That within thirty days from the passage of this act the Governor shall appoint a State Health Commissioner by and with the consent of the Senate.

Sec. 2. Be it further enacted, That the Commissioner of Health shall be a regular reputable physician, of not less than ten years' of active practice, skilled in medicine and sanitary science, and he shall be the chief health officer for the State of Georgia, who shall hold his office for a term of four years.

Sec. 3. Be it further enacted, That the Commissioner of Health, with the approval of the Governor, shall have jurisdiction over all local and county health authorities in this State, shall formulate and promulgate, under the direction of the Governor, such rules and regulations regarding the public health and sanitation of the State, and shall formulate rules and by-laws for the purpose of suppressing contagious or infectious diseases in this State and the abatement of nuisances and the enforcement of quarantine and isolation in cases of epidemic diseases in this State. He shall have full power in all cases where he shall by the advice and consent of the Governor, deem it necessary to quarantine against any infectious or contagious diseases, and shall by and with the consent of the Governor formulate and promulgate such rules, by-laws and regulations as he may deem necessary, and provide for the enforcement of the same in this State or sections of the State, as from time to time that may be deemed necessary; *provided*, that nothing herein shall conflict with the maritime quarantine which is left to the charge and discretion of the national government, nor with any municipal board of health, which in the judgment of the Governor are faithfully and efficiently performing their duties.

Sec. 4. Be it further enacted, That the Commissioner of Health shall appoint, by and with the approval of the Governor, such subordinate officers as may be necessary to perform the duties of the office.

Sec. 5. Be it further enacted, That there shall be and is hereby created the office of county health officer in each county of this State. The said county health officer shall be a regular reputable physician who is versed in sanitary science, licensed and in active practice. The county commissioners, where there are such, or the ordinary of each county, shall appoint said county health officer who shall hold his office until the meeting of the grand jury of their respective counties, which grand jury of each county, at their first meeting after the passage of this act, shall appoint some reputable licensed, practicing physician as the county health officer for said county, who shall hold his office for the term of four years.

Sec. 6. Be it further enacted, That upon the failure of the grand jury of any county to appoint the county health officer, the State Health Commissioner shall, with the consent of the Gov-

ernor, appoint some reputable physician, of skill and experience in active practice in the county, who shall hold his office until such recommendation is made, unless removed by the State Health Commissioner.

Sec. 7. Be it further enacted, That the sum of $3,000 (three thousand dollars) is hereby appropriated annually for the current expenses of the Health Department and payable from any unappropriated money in the treasury of the State, and the Governor is hereby authorized to draw his warrant upon the treasury for the payment of the same, and the Governor is further authorized by this act, that in case of the existence of any contagious or infectious disease, dangerous to the public health, likely to become epidemic, to draw his warrant upon the treasury for the purpose of providing funds for the suppression of said disease.

Sec. 8. Be it further enacted, That all moneys of the Department of Health shall be expended by the Commissioner of Health under the direction of the Governor, and the Commissioner of Health is hereby required to render vouchers in duplicate for all such expenditures, one copy of which shall remain on file in his office, the other on file in the office of the treasurer of the State and for all moneys paid, the Commissioner of Health shall render a receipt from the payee as a sub-voucher.

Sec. 9. Be it further enacted, That the salary of the county health officers shall be fixed by the county commissioners of each county in this State, except in counties where there are no county commissioners, in which event the ordinary shall fix said salary, and they are hereby required by the first day of July each year after the passage of this act to draw their warrant upon the county treasurer of each county in the State for the payment of the amount of such services rendered.

Sec. 10. Be it further enacted, That the State Health Commissioner shall be paid the sum of $2,000 salary per annum out of the amount herein appropriated, and the Governor is hereby authorized to draw his warrant upon the treasurer for the payment of the same; and the Governor is further authorized to fix the expenditure for the clerical force and incidental expenses of said department, not to exceed $1,000 per annum, and is hereby authorized to draw his warrant upon the treasurer for the payment of the same.

Sec. 11. Be it further enacted, That all laws and parts of laws in conflict with this act be, and the same are, hereby repealed.

EUGENE FOSTER,
J. B. BAIRD,
J. B. ROBERTS,
Committee.

The above bill, as read, was heartily approved by Mr. Speer, Drs. Oertel, Graham, and others, who made brief speeches on it, after which, on motion, it was adopted by the Association.

INSTALLATION OF OFFICERS.

Dr. McRae, in retiring from the presidency, said: In retiring from the chair I thank the members of the Association most heartily for the uniform courtesy they have extended to me. I am not a parliamentarian. My rulings may not have been correct in some respects. I have had one idea in my rulings, and that has been to get the wishes of the Association and abide by them. If I have made mistakes, they have certainly been unintentional.

I wish also to thank the gentlemen who have so ably assisted me in carrying on the work of the Association. Without the help of the chairmen of the various committees it would have been impossible for us to have had the successful meeting which we have had in this city. One of the men who began working as soon as the Association adjourned last year in Macon was Dr. Westmoreland, chairman of the Committee on New Members, and his work speaks for itself. In every way Dr. Westmoreland has stood shoulder to shoulder with me and has advised with me, having been president of the Association, and his advice and counsel and able assistance have been most valuable and appreciated throughout the year. Next, I wish to thank Drs. Elkin and Cooper of the Committee of Arrangements, who have done so much to make the meetings a success; also Dr. Hubbard, chairman of the Committee on Receiving Funds, and for the admirable entertainment offered the members. We wish to thank Dr. Hurt, who has provided this place for holding our sessions. The last gentlemen, and by no means the least, I wish to thank our

vice-presidents, Drs. Graham and McMaster, for their valuable assistance in conducting the affairs of the Association.

It is now my pleasure to introduce to you the President-elect, a gentleman who needs no introduction, who is very much better known to you than I, and who will make a much better presiding officer—Dr. Samuel C. Benedict, of Athens. (Applause.)

Dr. Benedict, in accepting the presidency, said: Gentlemen of the Association, I desire to express to you my high appreciation for the distinguished honor that you have conferred upon me, and if I felt within myself that I could make as good a presiding officer as Dr. McRae has been, I should be more than satisfied to enter upon this duty. However, I will endeavor to the best of my ability to further the interest of the Association, and to do all I can to keep up the good work which my predecessors have so successfully carried along. (Applause.)

Gentlemen, I now call for the next order of business.

Dr. Eugene Foster: I move that the thanks of the Association be extended to the retiring president, and to the Vice-Presidents and other officers of the Association. Seconded and unanimously carried by a rising vote.

Dr. McRae appointed the following delegates to the American Medical Association:

Dr. A. W. Calhoun,
Dr. Howard Williams,
Dr. Wm. F. Holt,
Dr. H. R. Slack,
Dr. W. F. Westmoreland,
Dr. W. M. Goldsmith,
Dr. Eugene Foster,
Dr. Dunbar Roy,
Dr. E. C. Goodrich,
Dr. W. J. Little,
Dr. J. W. Bailey,
Dr. O. H. Weaver,
Dr. Thos. R. Wright,
Dr. St. J. B. Graham,
Dr. J. H. McDuffie,
Dr. Jas. C. Bloomfield,
Dr. J. S. Todd,
Dr. O. W. Bush,
Dr. Wm. P. Nicolson,
Dr. C. C Stockard,
Dr. J. L. Hiers,
Dr. W. O'Daniel,
Dr. J. L. Farmer,
Dr. Jno. L. McLean,
Dr. W. B. Hardman,
Dr. W. D. Travis,

Dr. S. C. Benedict,
Dr. T. D. Coleman,
Dr. B. W. Fite,
Dr Floyd W. McRae,
Dr. C. A. Smith,
Dr. T. R. Garlington,
Dr. I. H. Goss,
Dr. H. McHatton,
Dr. T. M. McIntosh,
Dr. W. E. Fitch,
Dr. W. H. Doughty, Jr.,
Dr. J. B. Morgan,
Dr. G. H. Noble.

Dr. T. E. Oertel, of Augusta, read a paper on "What to Send to the Microscopist and how to Prepare It."

Dr. J. E. Mangum, of Reynolds, followed with a paper on "Some of the Uses of Veratrum Viride."

Dr. J. B. H. Day, of Social Circle, read a paper on "A Case of Prostato-Cystitis with Complications."

Dr. C. C. Stockard, of Atlanta, read a paper on "Some Points of General Interest in Regard to Drug Addictions."

Dr. William J. Little, of Macon, read a paper on "Some Precautions against Infection in Post-Operative Dressings."

Dr. W. D. Hoyt, of Rome, read a paper entitled "Report of Two Cases of Empyema, Treated by Drainage and Injections."

On motion, the Association then adjourned to meet in Augusta on the third Wednesday in April, 1901.

VARICOSE ULCERS—REPORT OF CASES.

V. D. LOCKHART, M.D., MAYSVILLE, GA.

Gentlemen:

This is an old subject but one of interest on account of the frequent occurrence of these unhealthy sores on the lower limbs, and the difficulty often experienced in their cure.

The number of cases in my practice that have gone the rounds, so to speak, treated by first one and then another, has led me to record my impressions with a view to discussion and improvement in treatment.

I shall not confine myself to the usual classification, as found in the books under the names of indolent, phagedenic, varicose, etc., but I shall try to present the subject in a brief manner, as we meet these cases in our office practice almost any time, and mostly with a view to treatment.

I may say, in a general way, that we cannot treat these cases successfully unless we direct our attention especially to the condition of the ulcer itself, the circulation in the limb, and to the general health of the patient. We often find a combination of causes operating conjointly to prevent the healing process; for instance, we may have a deep ulcer, with much sloughing, profuse infection of micro-organisms, venous stasis, and constitutional syphilis, or heart disease, anemia, or tuberculosis to deal with. These must all be taken into consideration, and searched for in any given case.

Again, we cannot hope to cure these cases unless we first obtain a clean surface within the sore itself. We are all aware that healthy granulations cannot form, nor can we promote their growth so long as we have a foul, weeping surface for them to grow upon; nor so long as they are starved out by the venous stasis, or by indurations that cut off the arterial circulation.

Of course these cases of "sore shin" or indolent ulcers can be readily cured in a hospital or sanitarium, but most of them, as our country doctors meet them, are farmers or laborers. A slight injury, then a sore. It is neglected for a time, and, in some cases, rapid sloughing occurs until a frightful and intractable sore is the result. They come into our hands in this condition and they cannot give up their occupation, and we have to treat them as best we can as they go about their work.

Case 1.—A. B., negro, fifty-seven years old; heavily built, large, muscular limbs. History clear of syphilis. Sore came on outside of right leg about half-way between knee and ankle-joint over two years ago. Treated by two or more physicians unsuccessfully. Limb greatly swollen, veins stand out prominently nearly all over surface of leg, especially so around the sore. A viscid secretion covers the skin, tissues deeply infiltrated with serum. Sore three inches long by over two inches wide, oval in shape; very deep; can almost push my finger down to bone; a deep pocket or pouch leading from inferior border of the opening. Edge of sore hard and turned down into cavity on upper side; lower edge flabby and ragged. Cavity almost half full of foul-smelling secretions. Case looked very unpromising. Patient was considering matter of amputation as the only remedy. Cleaned out sore by sponging and scraping as best I could, and ordered hot bath for thirty minutes, to be followed by corn-meal poultices, renewed

from time to time, with hot bath twice daily. Patient ordered to lie down for a few days with leg elevated. This reduced the edema a good deal in three days, when patient returned. I now succeeded in cleaning out the cavity pretty well. Washed out with solution chloral hydrate, 10 or 12 grains to ounce. Packed sore nearly full of iodoform, covered with gauze and over all large square of absorbent cotton. The limb was then wrapped with the Martin elastic bandage from foot to knee. Gave tincture chloride of iron and iodide potassium; the iron before meals and the potassium solution after meals, 10 grains ter die. This treatment was kept up constantly for three weeks with pretty fair results; but the cure was slow indeed. I heartily wished myself free of the case. One forenoon, after looking at the ugly and hateful thing for some time, I decided to apply a paste made of chloride of zinc and rye flour about the proportion of one-third zinc to two-thirds flour. This I did, and told the man not to expect any sleep that night on account of the burning pain. He stood it well and appeared early the next morning for treatment. I found the cavity entirely clean this time after sponging it out. Something more had been accomplished. The active stimulation of the caustic paste had changed the nutrition in the surrounding tissues and placed new energy in them. From that time the work of repair went on without interruption. His medicines were continued and the bandage faithfully applied every morning before attempting to walk. At night the bandage was taken off, cleaned and dried for use the next day, the sore cleaned out, the leg bathed in hot water. A little more than eight weeks was required to effect a cure in this case.

Case 2.—Lady, fifty-one years of age, mother of five children. Had phlegmasia dolens during her fourth confinement. Limb badly swollen during her last pregnancy,

and had remained for several years in same condition. Last fall she had received a slight scratch on the outside of the leg, about six inches above the ankle. This refused to heal and another sore had appeared later, a little lower down. The entire limb is now greatly swollen, tender all around the ulcerated points. There is constant burning and sense of weight in the limb, and the large veins are dilated. The woman is anemic and nervous.

Cleaned out the sores with carbolized water, packed with iodoform, applied cotton over sores and applied elastic webbing three inches in width from ankle-joint to pelvis. Gave iron and quinine tonic, and told her to sponge out the sores every night, and apply bandage every morning. She came to my office twice a week. Treatment continued for a month, when the patient was dismissed with instructions to wear the bandage for a month or two longer.

In closing I will state that two years have elapsed in one case and nearly three in the other since these cases were treated, and up to the present time there has been no return of the trouble.

The treatment, then, consists of cleaning out the sore itself, and keeping clean as possible; treat the general health as indicated by the pathological conditions presented, and applying the elastic bandage to the limb daily to give mechanical support to the weakened and dilated vessels.

FALSE GODS AND FAKE PRIESTS OF MEDICINE.

R. P. COX, M.D., Rome, Ga.

I once heard the eccentric Dr. Bartholow, commenting upon the large per cent. of the sick who never reached the hands of the accredited profession, say: "Indeed, the time seems not far distant when the man least likely to see a sick man is the medical man." This matchless bit of satire, the thrust of a master hand at popular fondness for quackery, is, nevertheless, full of suggestive interest, first for mankind in general, and then for the representatives of true medicine.

It is certain that the question of medical humbuggery is more the problem of the people than of the profession. It may be seriously questioned whether the rewards and honors of true medicine are on the whole materially impaired by all the arts and practices of quackery. This is true for the following reasons: First, the charlatan is largely concerned with disease that does not exist; secondly, he preys extensively on very chronic or incurable disease, and finally, the victim, having proved the misrepresentation or indulged the superstitious prompting in vain, returns to reason and rational medicine.

The quack works along dark or fantastic ways to ends that are vain or fanciful. True, he grinds some grist by sluice-ways that tap the proper current of medical business, but the diverted waters ever seek again the parent channel. However, his favorite enterprise is against the thin shadows of unreal ills, the plaints of underfed minds or overfed

bodies. This class is responsible for most of the fulsome endorsement and bad pictures of the newspapers.

Quacks further make the business that they do by magnifying a slight ailment or by calling some perfectly natural process a disease. Thus, a slight nasal catarrh is beginning consumption; certain natural phenomena of the unmarried virtuous is sexual decay; precipitation of phosphates in urine made alkaline by time or by drug is serious disease of the kidney.

Against real disorders and unreal alike they often direct some more or less plausible remedy. Electricity, massage, magnetism and hypnotism lend their mysteries to shroud his ignorance and folly. A stratum lower down we find the root-doctor and the practiser of voodoo charms and spells.

Perhaps the most unalloyed fraud of them all is the magnetic healer. They usually combine a pretense of mesmerism, massage, religion or even medicine with their vaunted magnetic powers. They often operate in connection with one or more bunco-steerers, usually a fair-spoken, florid and rather buxom female, whose business is to beat the bush and start the game, asserting her own "marvelous cure."

I once knew a corpulent representative of this system who very nearly fulfilled my ideal of the father of quacks. So repulsive was this man's face that a judge of that town, a man of most unimpeachable integrity and good sense, declared to me that he always turned away his head when passing that man to avoid the pain and disgust that he derived from a sight of that unspeakable Pecksniffian countenance. I doubt if another such pure specimen of all-round quack is to-day extant. Yet many ladies and some men believed devoutly in the goodness and skill of this arch hypocrite and impostor. He bore his blushing honors thick upon him. Cures that would well-nigh discount the mira-

cles of Christ himself were solemnly asserted and loudly proclaimed; but finally truth, which camps eternally on the trail of error, began to menace his rear. Not a grain of powder was burnt, nor an ounce of blood was shed, but he folded "his tent like the Arab, and as silently stole away." He just petered out from an exhaustion of wind and gas. The passing quality of quackery, whether of systems or individuals, is so characteristic and so eloquent of arraignment. It wanders about like a scourge, ever seeking fresh material.

Yet, while the tide sets in its favor, it is a regular bay of Fundy affair. The rock of the law is shaken and common sense is as an egg-shell. Then it is that any man who has no better claim to public confidence than honesty and proper knowledge of medicine is bold indeed if he criticize the worship of the calf or even comment on the length of its tail. The partizans of error are relentless. When their zeal is crossed they would starve your children and break your heart if they could.

All this and more one might forgive and be happy, but there is a breed of quacks that outquack quackery itself. I refer to the absent treatments of the hypno-magnetic pretense. They actually place advertisements in the papers and the papers actually print such advertisements and many people actually read them and send five dollars for a month's treatment. One of these absent treaters, who kept more than a score of typewriters busy, and whose daily income was nearly five thousand dollars, was recently arrested for using the United States mail to defraud. This happened in old Boston.

You will recall Henry Grady's man, who, by reason of the pasted leaves, read a description of Noah's ark for Noah's wife and believed it. How it must have strained the hawser of his faith when he read that she was 300

cubits long, fifty cubits broad and thirty cubits deep, built of gopherwood and lined inside and out with pitch. You will remember he stopped, pulled off his specks, wiped them and said, "I have been reading the Bible for thirty years and I never saw that before; but I accept it as evidence of the fact that we are fearfully and wonderfully made." Yet I declare to you that man was a scoffing infidel compared to him who takes absent treatment. Surely the thing is about to burst, or are the depths of human credulity and folly not yet sounded?

"The American people like to be humbugged," said Barnum; "and the bigger the humbug the better they like it." But surely they have limits. It is notorious that no other civilized country does or would tolerate the medical frauds that thrive and fatten in this favored land. In no other land is it the common privilege and practice to call the chief executive a hog-thief and a liar. How easily does liberty become license. It is the experience of the great nations of Europe that the masses must be protected by law from the inroads of the designing and unscrupulous. To assume that our masses need no such protection is gratuitous and amply disproven by the facts. If this be paternalism a little of it would not hurt us.

Superstition has been the bane of all times and places. It has touched ages, and they were darkened; arts, and they were blackened; nations, and they were benighted. It is the foul excrescence, the malignant fungus that is ever springing from the normal and goodly bough of religious faith in a great first cause. More than avarice, more than pride, it has caused man's inhumanity to man. It threatened Galileo, denounced Watts and nearly destroyed Columbus and his great work. It has burned the bodies of thousands and dwarfed the intellects of millions. It hates the light and fears the truth, and these are the

weapons that will finally cut off its hydra head and destroy its Protean body.

However, superstition and pure charlatanism are not solely to blame for the plague of quackery as it lies upon us to-day. More to be dreaded than false gods are the fake priests that stand round the altar of Hygeia and pervert and falsify the true service of the true goddess. When our profession has purged itself of what is false the problem will be greatly simplified. We have cause for encouragement along this line. The moral and educational standards of the profession are being steadily advanced. The man who fails to learn what he should learn and professes to do what he cannot do is more and more discountenanced. More and more are they driven to frantic appeals in the press. How unlovely and how execrable is boastfulness in medicine.

I cannot think so meanly of my race as to doubt that some men blush when they read what they have written in the public press. So bold, so callous, so utterly shameless do they become, that they claim not only the attributes of divinity, but apply to themselves the very names of God, in the public press. What infamous lies, what reeking filth, what awful blasphemies they perpetrate in the public press.

There is something more than ignorance and credulity that leads victims to quackery, and it is despair. Some of us are overhasty to pass hard sentences on the apparently or really incurable. Drowning men will still catch at straws, and what wonder that the impaired mind and enfeebled body should make quackery the court of last appeal?

Surely our science is not so limited, nor our art so poor but that there still remains some hope, some cheer, for every suffering mind and body.

And now a word on Christian science. These, I believe, are largely a good people. There can be no sort of doubt that many of them mean well. Recently a western doctor offered to put their medical theories to the proof by inoculating true believers with various infective agencies. So far I have heard of no considerable number applying for the test. Against light disease and against no disease they are redoubtable, but when they are up against the real thing they had better trek, or mortal mind will cut their line of communication sure. The Creator has set his law and we must respect it or get our fingers burned. He can and He may still work miracles, but they are not for drowning men who throw away life-preservers. When one recalls the little tendencies of the age and sex of many of the faithful, he cannot entirely reject the low suspicion that they are not quite consistent. What a scandal it would brew if a box of Dr. Morse's Indian Root Pills should be discovered in the house of mother herself.

Now, what are the best methods of combating quackery? It seems to me that the practical means are, greater regard to fitness in the making of doctors, to popularize knowledge of the real powers and limits of the healing art, and to legislate against those whom greed, ignorance, knavery or fanaticism tempt to prey upon the public.

Let us take the people into our confidence, for in this land their will is law. Let the fact go forth that it is not competition in itself that we are fighting. We bar none whose qualifications at all fit them to become doctors of medicine; indeed, our fault is one of leniency and not of severity. No trust but that of fitness, no league but that of honor, do we ask or desire. Medicine is far too difficult and too dangerous for idle trifling. Let neither saintly ignorance nor unholy wisdom dare to touch it. Least of all should lying ignorance profane its holy temple. The

best efforts of the best years of the best of us serve but to begin its proper study.

Let us say further to the people, have we merited aught of confidence and courtesy at your hands? Did we not give you Edward Jenner, first among the benefactors of his race, who drew the dragon's teeth and made him a weakling and a coward? Who gave you Listerism and all that antisepsis and asepsis stand for? Like guardian angels they stand round the bed of suffering and follow us for good all our days. Have we not elaborated public sanitation and private hygiene until, almost in our own time, half a score of years have been added to the span of human life? In a thousand laboratories, by a million bedsides, do we not labor night and day to weave the threads of knowledge into the fabric of wisdom? The yellow plague of the South, and the black plague of the East, do they not knock continually at our doors? Who are ever standing, with clear brain and ready hand, twixt them and you? What heart does not thrill and soul expand when they contemplate the McClures of our profession, who, unrewarded and unsung, wear out their lives for others with a purpose so unselfish and exalted that the very angels might envy them? We know there is more of this than the layman might suppose. We tolerate no nostrums, no trade secrets, no patents, but of such knowledge as we have, give freely to all the world.

And now, must we, with bared head and bended knee, beg, and beg in vain, for our simplest right and due?

There are many in this house to-day whose rewards and honors would not be sensibly affected if every species of quackery were this hour suppressed. There are few here whose money interest in such suppression is material. If money were everything, the interest of the people would still be prime, for the game of quackery is to get something for nothing, or worse than nothing.

Let us say further, would you trust a pilot who knew not the channel, or knowing it, would imperil or wreck the ship for gain? Would you trust a butcher who did not know measly pork, or knowing it, would still sell it to the ignorant? Would you trust a milkman, a grocer or any man who did not know what was pure and wholesome, or knowing it, would still take your money for what was worthless or hurtful? These are they who in medicine are called quacks. They belong mostly to both of the above classes, so far as don't know and don't care relates; for knowledge of medicine comes only with years of patient study and observation, and its pursuit tends to elevate the mind and ennoble the heart.

Since legislative power rests with the people, there is special need for popular education along these lines. What doctor has not writhed and groaned in spirit to hear the crude, puerile and utterly baseless ideas of health and disease emanating from even the shrewdest and, in general, best informed of laymen.

The common school, the lecture hall and the press in general, in a spirit of atonement, should do this work. It is a fact of great significance and promise that the "Christian Era" and a large Cincinnati daily paper have just closed their columns to every sort of medical advertisement. How strong and how clear must have been the convictions of these men, for their gain from this source was great. How keenly we should appreciate these oases of sense and honesty in a dry and weary land.

From an authoritative source let the main facts and the limits of hypnotism, suggestion, electricity, magnetism, and the like reach the masses. Let us agitate the question to counteract the torrent of misinformation that charlatans are pouring along every highway and byway, into every home and hovel. Our committees on legislation should

gather and disseminate facts as well as promote proper legislation and in every way aid the cause of reform.

Let us to whom it has been given to keep the sacred fire burning, gather round the flickering light of a dying but to us a glorious century, and kindle anew the flame of zeal and devotion to duty and truth. Though the heathen rage still and the people imagine a vain thing, there are better things for us and for all in the dawning century.

OPHTHALMIC THERAPEUTICS FOR THE GENERAL PRACTITIONER.

A. W. CALHOUN, M.D., LL.D., ATLANTA, GA.

Chemistry is constantly presenting so many new drugs to the physician's attention, that it is almost confusing, and certainly difficult, to test and decide which should be retained. However, there are some that deserve to be held in high esteem by the specialist and general practitioner.

Among the newer drugs useful in ocular therapeutics we have four that are particularly valuable and to which I wish to direct your attention.

1. *Protargol.*—This brown-colored proteid compound containing about eight per cent. of silver, is considered better than any inorganic silver salt yet used. It is much less painful and less dangerous to the epithelium, while it penetrates deeper than the silver nitrate, and on this account can be used much more freely and frequently.

One of the great objections to the nitrate is the long-continued and violent pain following its application to the conjunctival surface.

There is but little pain from the protargol, and it can be applied several times a day if needful. It has been used in phlyctenular ophthalmia and injected into the lacrimal sac in dacryocystitis with great benefit; and quite recently is being applied to the middle ear in suppurative inflammations with satisfactory results. Perhaps in gonorrheal conjunctivitis nothing can replace the silver nitrate; but in all other inflammations and irritations of the ocular mucous

membrane, even ophthalmia neonatorum, protargol in five to ten per cent. watery solution is much better for the general practitioner. It must be borne in mind that the too free use of even this mild silver salt will produce argyrosis, the dirty gray or blue-black discoloration of the conjunctiva we all know so well; therefore care must be exercised in the use of it.

Although protargol is not the absolutely ideal agent in the treatment of inflammatory mucous membrane affections of the eye, it is in many respects an important advance upon the silver nitrate.

2. *Extract Suprarenal Capsule.*—The local and constitutional effects of this preparation are very remarkable, and it is much used both by the general practitioner and specialist; indeed, it is surprising that it is not much more employed in general practice.

It is an unstable powder, has a brown color and a decidedly animal odor, absorbs moisture when exposed to the air, is weakened by heat and easily spoils in the presence of water. When needed it should be freshly prepared, as it has no well-defined solubility, mixing about five grains with one drachm of water. Usually it is filtered, but I use it without filtering, which is a tedious process; and, besides, I get also the benefit of applying at the same time the undissolved powder with the watery solution.

Experiments have shown that it is much more astringent than hemostatic, being perhaps the most powerful astringent known. The rapid cures of inflammation and the relief of pain from its use are due solely to its astringent property, as it is not an anesthetic, nor has it any antiseptic powers. Applied to the eye, the conjunction of the ball and lids becomes whitened in one or two minutes, but it has no effect upon the pupil, nor does it produce any constitutional effect when applied to the mucous surfaces.

In making operations upon the eye or nose, it is best to precede the application of the extract by that of a four or five per cent. solution of cocain, so as to get the combined effects of the anesthetic and the astringent. For years cocain has rendered almost painless the various operations upon the eye, the ear, nose and throat, but the accompanying hemorrhage is frequently annoying and very embarrassing. Under the influence of the two drugs, not mixed, but one following the other, both pain and hemorrhage are absent. Within the last week or two I have seen its wonderful astringent effect in two cases of nasal hemorrhage. In both cases the bleeding had continued for several days, and all the remedies used had failed to check it. After clearing away the blood-clots and bringing into view the bleeding surfaces, the hemorrhage ceased almost instantly upon the application of the suprarenal extract. A few treatments sufficed to effect a perfect cure. It is now being used with great advantage in operations and applications of the galvano-cautery upon the eye, ear, nose, throat, urethra and other mucous surfaces, not only for its profound hemostatic effect, but to enhance the local anesthesia from cocain, holocain, etc. Its prompt and efficient effect would suggest the danger of secondary hemorrhage after operations, and it would be well to guard against such a possibility. It has been demonstrated to be also a heart tonic, and its physical properties would point to its usefulness in cardiac failure and other diseases of the heart of a varied character.

3. *Holocain.*—This is another of the new remedies that has come to stay; but its chief use is as a local anesthetic in ophthalmic surgery. It is one of those new synthetic substances, is soluble in water, and should be applied in one per cent. solution. Wherever cocain is indicated the holocain can also be used—perhaps to greater advantage, as it does not dilate the pupil nor disturb the accommodation. It acts

quickly and causes no pain. The corneal epithelium is affected less by it than by cocain, and its use is followed by much less hyperemia. It is decidedly antiseptic in its action. As it is a systemic poison, it must not be injected hypodermically, nor be applied to other than the ocular mucous membranes. Holocain does not primarily contract the blood-vessels, and therefore does not tend to control hemorrhage, as is the case with cocain; but by those who have had much experience with it, it is considered not only as good as cocain, but preferable to it.

4. *Euphthalmin.*—The chief claim of this new remedy to the attention of the oculist and general practitioner is as an agent for quickly dilating the pupil. Every day we see cases where it is desirable to dilate the pupil for ophthalmoscopic examination. The objection to most of these dilating agents is the annoying length of time after their use that it takes for the pupil to contract to its normal size.

In a few minutes after the instillation of a five to ten per cent. watery solution of euphthalmin the pupil is widely dilated and ready for the ophthalmoscopic examination. In about twenty-four hours the pupil has regained its normal size. It is purely a mydriatic and does not tend to increase the tension of the ball. It produces no hyperemia of the conjunctiva, and does not roughen the cornea. Its chief recommendation is for routine use to dilate the pupil for ophthalmoscopic examination, and, secondarily, as a substitute for atropia in cases of intolerance of that drug.

DISCUSSION ON THE PAPER OF DR. CALHOUN.

Dr. Dunbar Roy, of Atlanta: I have been very much interested in the excellent paper of Dr. Calhoun, in which he has spoken of those remedies which we have found of late to be very valuable in the treatment of the three organs he has referred to. In the treatment of ear diseases some of the remedies mentioned are not so efficacious in

my own experience because pain is very little relieved by the local application of remedies to the ear. The ear is one of those internal organs in which it is almost impossible for us to relieve the pain from disease of this organ except by general anodyne applications.

With reference to the use of protargol, I have been using it for about one year, before which time I employed argonin, but I consider protargol much more satisfactory in cases of gonorrheal ophthalmia attended with pus discharge. I believe it is one of the best remedies we can put into the hands of the patient. The great trouble with nitrate of silver, which has been our sheet-anchor, is that in order to prove efficacious it must be applied in strong solution and by one who knows what parts he is applying it to. On the other hand, a patient can use protargol every half hour or every two hours, or as often as may be necessary, and it will stop the purulent secretion, and at the same time it will have a healing tendency upon the whole mucous membrane. Whenever you have patients that you cannot see every day or two, particularly those in the country, and where there is a purulent discharge from the conjunctiva, it is the best remedy that can be used by patients. In gonorrheal ophthalmia it is one of the remedies par excellence. It is not to be used throughout the whole course of the disease, for in the latter stages of the affection, when the secretion begins to diminish in amount, and there is a succulent condition of the mucous membrane, nitrate of silver should be used if you wish to get a smooth condition of the conjunctiva.

With reference to the extract of the suprarenal capsule in ophthalmic and nasal practice, it is an agent of much value, and I agree with Dr. Calhoun with reference to what he has said regarding it. It has great hemostatic properties, which are evident just as soon as it is used. It is true, that objections have been urged against its use,

and on very palpable grounds. While it produces quick and absolute blanching of the mucous membrane, turning it from a red to almost a distinct white color, rendering it bloodless, you can cut it with scarcely a drop of blood coming from the cut surface, yet the objection has been offered that there is a relaxation, and that it is more apt to produce a secondary hemorrhage. On this account in nose and throat diseases some physicians do not use it as freely as others. Yesterday, in removing a large hypertrophy from the posterior end of the inferior turbinate, there was no bleeding, yet two hours later, when the patient returned to my office, I worked at him some time before the hemorrhage was arrested. Fortunately, we used the remedy again and it produced a blanching effect, followed by the complete arrest of the hemorrhage. In nosebleed it is a remedy par excellence. I make it fresh every time I use it. I make it up just as I need it, and I put nothing else in it except pure water, stir it up, and make a perfect mixture. It has been claimed, and not without good reason, that it constricts too much the mucous membrane. For instance, we have an enlargement of the mucous membrane covering one of the turbinates; we desire to snare it off or remove it with scissors; if it is contracted very much, then it is very difficult to use the snare. It has been found that we should wait but three or four seconds in making the application before we immediately do the work, that is, having thoroughly cocainized the parts, we apply the extract of suprarenal capsule; in a few seconds, before its marked constricting effect takes place upon the mucous membrane, we do the operation at once. If you have a plug of cotton soaked in suprarenal extract solution, apply it to the part and let it stay for a while; it will constrict the tissues so that there will be no enlargement. The thing you wanted to remove has been taken away by the suprarenal capsule.

Holocain is another excellent remedy, and I agree with Dr. Calhoun in regard to its use in the removal of foreign bodies. The introduction and use of this drug has been one of the great advances we have had in the last few years to aid us in the removal of foreign bodies without producing concomitant unpleasant symptoms.

Dr. James B. Baird, of Atlanta: With reference to purulent ophthalmia, the subject is one of such general interest, the ravages of the disease are so terrible, and the difficulty of dealing with these cases satisfactorily, especially in the country, is so great, that I for one should be glad if Dr. Calhoun would, in closing the discussion, give us detailed directions or suggestions as to how the remedies he mentioned ought to be applied in ordinary practice; that is, by the nurse, or by the attendant. Of course, the usual routine practice in cases of purulent ophthalmia consists in the daily application of nitrate of silver, five or ten grains to the ounce—the tendency among practitioners is to use the weaker strength—and some antiseptic solution, as bichloride of mercury about 1 to 10,000, for the purpose of washing out the more or less abundant secretion from the eye. It would be interesting for Dr. Calhoun to tell us how he would combine protargol with the familiar remedies in the ordinary treatment of this dangerous affection.

Dr. R. P. Cox, of Rome: I consider the use of suprarenal extract an important contribution to nose, throat and eye therapy. Dr. Roy spoke of the solution undergoing decomposition very readily, and said that a fresh solution should be prepared frequently. I find that the solution will last twenty-four hours without emitting any unpleasant odor.

In a case where one operates upon the nose without the use of the cautery and would anticipate considerable

hemorrhage, the astringent effects of this remedy are marked. A piece of absorbent cotton, saturated with the suprarenal extract, and applied for a few hours will usually prevent hemorrhage. This fact is of especial importance since the cautery is being largely replaced by the trephine scissors and cold snare, and enables us often to omit the tight packing.

Dr. Calhoun (closing the discussion): In reference to the preparation of suprarenal extract, it is best to have it as fresh as possible. I frequently keep it for a whole day and prepare it without filtering it. It takes considerable time to filter it, and I do not think we get the full benefit of it when filtered as by using the undissolved powder with the fluid in which it is dissolved. I would not use it after twenty-four hours on an abraded surface. It is a distinct animal substance, as you can tell by the odor, and if it is applied to an abraded surface after twenty-four hours you run some risk. It is best to use it fresh on every occasion.

In reference to the treatment of ophthalmia neonatorum, I have used protargol a good deal in this affection with excellent effects. However, I do not think anything absolutely takes the place of nitrate of silver. In the treatment of ophthalmia neonatorum we have to trust a great deal to the nurse, and I give instructions to the nurse to use protargol during the day. It can be used four or five times a day with great benefit and advantage, and I must say that since I have been using the preparations I have mentioned my results have been much better. I used to think that when a physician lost a case of ophthalmia neonatorum, if he succeeded in getting hold of it in time, it was his own fault that the cornea sloughed. I have changed my opinion regarding this point. The cornea sloughs and the child becomes blind sometimes regardless of the best attention given to it.

In this country we have very little of the diphtheritic variety which is so frequent in Northern climates, accompanying ophthalmia neonatorum. The use of protargol in ophthalmia neonatorum is of great advantage, and it is a much safer and simpler remedial agent in the hands of the general practitioner. If I were in country practice, where I had a number of these cases, or an occasional case, I should be afraid to leave the application of nitrate of silver to the nurse, particularly where I could not return frequently enough to see how my cases were progressing, and I would therefore suggest a two to five per cent. solution of protargol with the greatest confidence in the hands of the physician, or in the hands of a good nurse, who should keep it up three or four times a day. The prophylactic treatment of ophthalmia neonatorum is a great advance, and I of course now refer to the method of Crède. A great many practitioners have told me that since they have adopted the Crède treatment they rarely ever see a case of ophthalmia neonatorum. It is simple treatment. You take a two per cent. solution of nitrate of silver (ten grains to the ounce), and after cleansing the child's eye thoroughly with warm water, without soap, put one drop of this solution in the lower lid. The prophylactic treatment of Crède, since its introduction into lying-in hospitals, has reduced the cases of ophthalmia neonatorum to a little more than one per cent. A great many eyes have been destroyed notwithstanding the best treatment.

In reply to Dr. Baird's request to give the detailed treatment of ophthalmia neonatorum, I will in as few words as possible give the treatment I pursue in such cases. There is no doubt about the danger of this disease. It is said that in Germany and Austria together there are three hundred thousand blind people, and ten per cent. of them, according to recent statistics, or thirty thousand, are blind from ophthalmia neonatorum. If prophylactic treatment

had become universal previous to the blindness of those three hundred thousand, there would be thirty thousand less of blind people in Germany to-day. In our blind school in Macon we will find the same proportion holds good. Probably the percentage is a little larger in our State. Dr. Holt, who is physician to this institution in Macon, and who is present, will bear me out that one-third or one-half of the cases in Macon at the blind academy are there as the result of ophthalmia neonatorum. Anything that will reduce the bad results of ophthalmia neonatorum we want to know something of.

A word or two as to treatment. A good treatment is to begin with the use of a solution of bichloride of mercury 1-10000. Wherever it is possible I instruct a trained nurse to evert the upper lid and irrigate the conjunctival surface thoroughly every fifteen or twenty minutes during the day with a 1-10000 slightly warm solution of bichloride of mercury. Once a day, if possible, I see the patients myself and make an application to the conjunctival surfaces of a five or ten grain solution of nitrate of silver according to the violence of the disease. More recently I have prescribed additionally a five per cent. solution of protargol, having the nurse drop it on the lower lid freely, three or four, or five times during the day. Since the application of this remedial agent I have not lost an eye. If these cases of ophthalmia neonatorum are taken in time, you will not lose many eyes, but occasionally the patients will become blind regardless of the great care and attention which you may devote to them. There is an immense amount of pus that flows from the eyes of infants. I do not think I am exaggerating when I say that in some cases two or three ounces will flow in twenty-four hours. During the acute stage, the lids are badly glued together, and on this account I use the white vaseline freely. I use the tube vaseline because of

its cleanliness. With one application of the nitrate of silver, a five or ten grain solution, once a day; with the use of protargol, five per cent., applied four to five times during the day, and with irrigation every fifteen minutes with a one to ten thousand warm solution of bichloride of mercury day and night, it is very rarely that one of these cases becomes blind.

THE PHYSICIAN THE NATION'S GUARDIAN.

J. CHESTON KING, A.B., M.D , ATLANTA, GA.

Mr. President and Gentlemen of the Georgia Medical Association:

Since heaven's bow of beauty was first set in the clouds there has never been held out a more glorious hope than the careful progressive research that has been introduced into the armamentarium of the physician of to-day.

There have been found and established by clinical experiences remedial agencies in the combating of dreaded diseases destined now to supersede some time-tried professional friend.

From the writings of Herodotus we glean that the physicians of Egypt were the most learned men and the guardians of their nation. In that early day they were forced to memorize the six medical books of Thoth—and if they followed closely the precepts contained therein and the patient died, they were held blameless; but if it were found that a physician departed in his practice from the prescribed rules, and the patient died, he was put to death. Progress in medical science has gained development rapidly as the ages passed by. Slowly and laboriously physicians have struggled on for thousands of years to acquire a knowledge of the fundamental truths of anatomy, physiology and pathology, and each century has established new and wonderful facts that will survive the corroding tempests of time. The actual volume of new knowledge has grown enormously from century to century—just as capital, in-

vested at compound interest for a long term of years, grows at the same steady ratio. And now, the nineteenth century, void of theosophic vagaries and sophistries, places upon the physician responsibilities more grave in character than ever before.

Can anything impress us more forcibly with the duty we owe to our nation than the words of Jesus in the book of Ecclesiastes, "The skill of the physician shall lift up his head; and in the sight of great men he shall be in admiration."

The time is now at hand when scientific researches have been crystallized, and their blossoms are merging into luscious fruit. Before the fates seemed ready to have Lister, Pasteur or Koch appear and enunciate their great and everlasting principles of antiseptics and germ theories, the mortality in operations from surgical dirt was placed at sixty per cent. But since we have been able from the light of these great men to formulate a systematic method to fight these microscopic enemies of life and health. The world at large has built a monument to this illustrious trio more lasting than brass and loftier than the regal heights of heaven.

Our surgeons in the late Spanish-American war (knowing that ptomaines and leucomaines are chiefly the result of the process of excrementition and elimination which are naturally coincident with the life history of the germ, and unless neutralized, destroyed or eliminated in some manner, are as fatal to life and health as the most powerful of toxic agents) reduced the mortality from operations as compared with the civil war from forty-five per cent. to fifteen per cent. And these strides in our science have been made in the face of what was thought to be insurmountable obstacles, but like unto the flame, it burns the brighter in proportion to the resistance which it conquers, and now on our in-

tellectual sea there is room for every sail, and in the intellectual air space for every wing.

For us to fully comprehend how the physician becomes the nation's guardian, we will have to first consider the many phases of the world's indebtedness to medicine; and especially to the wonderful improvements that have taken place and are taking place every day in surgery, medicine, obstetrics, sanitary science and practical hygiene. Taken in this extended sense, the physician becomes the nation's guardian both directly and indirectly. Directly, by preventing, removing or mitigating diseases. Who is it but the skilled physician that meets those death-dealing epidemics and plagues ere they reach our shores, and with his strong arm and unflinching nerve repels them with quarantine regulations? And who but he, after they have set foot on our beautiful and happy land, enters their loathsome abodes, crushing their power and mitigating their ravages?

And who is it that enlists in all the wars in the mission of saving life and restoring to their nation its young manhood? Echo answers: *Our gallant surgeons!* We see them as they part with those they love. We hear the whisperings and the sweet vows of their eternal love as they part. We see them bending over cradles, kissing their babes farewell. We see them now on the gory fields and in all the hospitals of pain. We see them in the ravines running with blood, and in the old fields. We see them bending over the life that is slowly ebbing away. When we consider their mission, and compare the ravages of disease centuries ago to what it is now, we can begin to appreciate the guardianship of the physician over mankind.

He stands the guardian of human kind,
Amid the battle plains of dark disease,
With soothing balm to heal the lame and blind,
And power to give the wounded blessed ease.

A soldier lies amangled on the field,
His white lips moving in a faint breathed prayer,
When lo! a pitying spirit by him kneels,
And dressed the wounds with skilled and tender care.

And one who else had died, returned to one
Who watched and waited many a weary day,
With fear and anguish for the soldier son—
Lost to her heart amid the battle fray.

He came alive and strong to mother, wife,
And holy little children sweet and fair,
And in God's book an angel wrote—
"A life saved by a brave physician's timely care."

And now let us examine for a few minutes what has been the fruits of the physician's labors as regards the almost complete elimination of mortality in certain diseases. What is smallpox to-day compared to what it was before the immortal Jenner; before the advent of vaccination, which he discovered? The death-rate of this awful malady was from fifty to seventy-five per cent.; now it is scarcely fifteen per cent. And what are the ravages of diphtheria to-day to what they were before the discovery of antitoxin? And until physicians informed the world that the so-called Devonshire colic differed from ordinary abdominal pain, and that it was due to poisoning from lead dissolved in cider, little or nothing was done in the way of prevention; but now you seldom hear of a case of lead colic. And at present there is an army of noble physicians giving their time and their money and even, in some instances, their very lives, to the study of that "black plague," known as "bubonic plague"; notably among whom was Dr. Camara Pestona, of Lisbon. These men are devoting their lives

to the study of this awful disease, in the hope of finding some potent remedy to stay its course or mitigate its ravages. I could, if space would allow, enumerate many other diseases; and painting humanity, the physician stands as a guarding sentinel. But I will claim your indulgence now for only one other instance of the benefit of physicians to humanity, and that is the improvement which has been wrought in the care and treatment of the insane and feeble-minded. For hundreds of years these unfortunate beings were supposed to be possessed by "demons," or to be suffering from witchcraft; and exorcisms were almost the only remedies applied. If these failed them, the stake or gallows was their doom. But now, through the investigations and efforts of a few (earnest) thinking physicians, all this has been changed. The majority of the insane are well housed and fed, and receive skillful medical treatment, which in many cases results in their restoration to their friends "clothed in their right minds."

So as physicians it is our plain duty to have a thorough and comprehensive knowledge of our profession, and to so thoroughly educate and skill ourselves that we may guard and guide the public in all matters relating to the preservation of health and the healing of diseases. The true independence of our beloved country in this and in all other matters relating to her physical and intellectual welfare and progress, must be achieved by enlarging and perfecting our institutions of learning and science, and by the most careful training and the highest moral, intellectual and scientific development of her sons. As the heart in the human body receives the currents of blood from all parts of the system, and having revitalized it, returns it, with fresh elements of strength, so the medical profession adopts the children of all lands only to return to their nation a manhood ennobled by a sense of its own dignity, through the

practice of a science which teaches a system of self-government, improving their conditions, promoting their interests, and by this means reaching the goal of all progress.

Two thousand years were required before mind could rule matter—and now we recognize that no civilization is complete without well-digested medical science. The spirit of progress has been sailing with her ships in every sea, and visiting all lands. And I can say with a feeling of pride and a just compliment to the medical profession, that every physician is the *sole proprietor of himself* and that no party or organization has *any deeds of trust on his brain.* In its ranks are to be found the blossoms and fruits of the world's best good, and gems of the human soul, filling the whole intellectual heavens with unbridled thoughts and thereby being the devoted guardians of their nation.

So if it be ours to solve the great problem of life, should we not have recognition in the nation's cabinet? Would it not be a deserved compliment to our profession? Would there not be more general information on the *life, liberty* and *property* of our citizens? Would not the foundation of our grand Temple of Investigation be made more secure? For, unfortunately, there are men who are sent to our nation's capital who endeavor to enact laws staying the wheels of science and who look upon progress as a *phantom of the imagination.* So let us be in accord with the article recently published by Dr. W. W. Keen:

"Let the medical profession make itself felt at Washington. The time is at hand for us to act, and let this Association frame a set of resolutions protesting against the passage of the Gallinger bill, and instructing our senators and congressmen as regards its deleterious influence on the progress of our profession."

To quote from Dr. Keen, he says: "The cause of humanity and of scientific progress is seriously menaced.

Senator Gallinger, a former homeopathic physician, has again introduced into Congress the bill for the "further prevention of cruelty to animals in the District of Columbia," which he has so strenuously and misguidedly advocated in the last two terms of Congress. Twice the Committee on the District of Columbia has also unfortunately and misguidedly reported the bill with a favorable consideration. The bill is drawn as if it were only intended in the interest of prevention of cruelty to animals. The real object of the bill is twofold: first to prohibit vivisection, and secondly to aid the passage of similar bills in all state legislatures. I need hardly point out to you that this would seriously interfere with or even absolutely stop the experimental work of the Bureau of Animal Industry and the three medical departments of the government—the army, the navy and the marine hospital service. No more humane work can be done than to discover the means of prevention of diseases which have ravaged our flocks and herds. The inestimable value of these scientific researches as to the prevention and cure of diseases among human beings it is superfluous for me to point out. Modern surgery and the antitoxin of diphtheria alone would justify all the vivisection ever done."

In conclusion Dr. Keen makes this appeal: "It is especially requested also that all of the national, state and county societies at their next meeting take action looking towards the same end. If regular meetings are not soon to be held, special meetings should be called. Petitions should be addressed to the Senate of the United States."—W. W. Keen, President American Medical Association.

So it is incumbent upon us as a progressive organization to act in this matter at once.

There is room in our scientific investigations for every wing, there is room on our sea for every sail. The true

physician's life says unto him: "Let your soul be like an eagle—fly out in the great dome of thought and question the stars for yourself." I want no grander, nobler, holier title than that I belong to that class of scientists whose object is to develop the value of the individual man to his nation, and that no longer with us the doctrine of the Epicurean philosophers prevail: "Let us eat and drink, for to-morrow we die"; but that we are working out the problem of life with science to guide our thoughts.

And now, in closing these scattering remarks, I beg to remind you that, great as is the debt of the nation to the physician for the saving of life and mitigating suffering, this sinks into almost insignificance in comparison with the indirect benefit to the world; for his influence extends far beyond saving of life and relieving pain. The work of statesmen and the leaders of human thought and progress are often dependent upon his aid—for medicine is the parent of the biological science, including anthropology and modern sociology.

HYDROPHOBIA AND THE NECESSITY FOR A PASTEUR INSTITUTE IN GEORGIA.

HENRY R. SLACK, PH.M., M.D., LAGRANGE, GA.

Fortunately for us this is a rare disease and never originates in man. Plutarch claims that hydrophobia was first recognized by the Asclepiadæ, and Homer's reference to the malign dog-star and Hector's acting like a raging dog are thought to imply a knowledge of rabies. Aristotle, in the fourth century B. C., described the disease and used the word lytta, but strangely enough claims that man was immune to the infection. Stranger still there are yet a few physicians who hold to this idea, and express themselves as skeptical about rabies in the human subject. "Just as a severe type tetanus" say they.

Hydrophobia, as we know, is a misnomer, as the fear of water is not, as popularly believed, the most prominent symptoms of the disease. Rabid dogs often thrust their noses into water; it is not the sight of water but the effort to swallow that brings on the fearful spasms during the period of excitement. Rabies and lyssa are better names though not so popular.

Canines are peculiarly liable to this disease. Over ninety per cent. of the cases reported have been caused by the bite of rabid dogs. This is one reason I hope the grand juries in every county in this State will recommend the adoption of the recent dog law passed by the last legislature.

All animals are, however, susceptible, and it is communicated by inoculation to the cow, horse, pig and even fowls.

The bite of a rabid wolf is most dangerous, next the cat and then the dog. Not every one bitten by a rabid dog develops hydrophobia. The cases vary with different observers from ten to thirty per cent. Wounds on the face are most fatal, then those on the hands and feet of children. This is doubtless because these parts of the body are unprotected by clothing, and the virus which is in the saliva is more apt to be inoculated into the wounds. The exact nature of the poison is not yet known, but it affects the nervous system chiefly, and is found in the secretions, especially the saliva.

The period of inoculation varies greatly in man. The usual time is from four to eight weeks, but cases are recorded where symptoms appeared in less than two weeks, and some few claim to have run two years, but these are doubtful.

Few cases are ever reported because they all terminate fatally, and no physician relishes reporting cases where cures are never effected. The only treatment is preventive, for there is no well authenticated case on record of recovery after rabies has been developed.

Pasteur discovered that the virus could be changed in potency by inoculation in different animals. The frequent inoculation of the monkey reduced it so that it produced no effect on the dog, but it could be greatly increased in virulence by propagating through rabbits, for while inoculation from the brain of a rabid dog took from fifteen to twenty days to produce the disease, by a series of inoculations in rabbits, the time of inoculation was reduced to seven days. The spinal cord of the rabbit contains the virus in great potency, but when preserved in dry air the poison reduces in intensity. If now a dog is inoculated with a cord fifteen days old, and then with one preserved for a shorter period, he gradually becomes immune to the disease.

Reasoning on these experiments, Pasteur tried immuniz-

ing man, and with what success may be judged from the reports of the various Pasteur institutes.

The New York Pasteur Institute, the last report (1898), shows 125 treated, with only one death, and this a child badly bitten on the lip. Chicago's total for nine years is 857 with four deaths—a mortality of less than one-half of one per cent. Baltimore reports 120 cases treated in about eighteen months without a death. Here we have a total of 1102 cases treated, and the mortality only five or about forty-five hundredths of one per cent.

These are facts and figures that should silence the most enthusiastic argument of the antivivisectionist in his fight against animal experimentation; for before Pasteur's discovery, reliable statistics inform us that 88 per cent. of all bitten on the face by rabid animals died.

As soon as the person is bitten the wound should be cauterized thoroughly, best with nitric acid and the patient hurried off to a Pasteur institute. The nearest one to us is Baltimore. He should, if possible, carry with him part of the brain and medulla oblongata (preserved in glycerine) of the animal that inflicted the wound, so that tests can be made to prove whether or not the animal was suffering with rabies. A number of cases have occurred in the practice of my colleagues, Drs. F. M. Ridley and Henry W. Terrell, and they have kindly furnished notes on the following, which are typical cases of hydrophobia.

Case 15.—Mary C., aged fourteen, negro, well developed girl, family history good. Was bitten by a rabid dog on the right eye, April 5th. Wound was cauterized with silver nitrate and healed up in a few days.

May 10th, Dr. Terrell was called to see the girl, who was complaining of burning, itching pain over the right eye, headache and loss of appetite. Depressed and anxious. Pulse 99, temperature 100 degrees. A purgative was given and large doses of potassium bromide.

May 11th, patient greatly excited and has "had some fits." An attempt to swallow brought on violent reflex spasms. Chloral and potassium bromide had no effect, and half-grain dose of morphine hypodermically gave her only temporary relief.

May 14th, patient had spasms on 12th and 13th, whenever disturbed, but to-day is quiet and can swallow water, but is very weak and losing consciousness. Died after being free from spasms for eight hours.

In July Dr. Ridley saw three cases of hydrophobia, one white and two negroes, all of whom were bitten by the same dog on exposed portions of their bodies. It was developed on one in two weeks, another in three weeks and another in about a month. All had well-marked symptoms of rabies, and all terminated fatally. Only one person bitten by that dog escaped. He also saw another case that had an incubation of seven months, so long, in fact, the patient had forgotten the bite and thought he had rheumatism. This patient died four days after being seen the first time.

Since thinking on this subject, I have noticed the Atlanta papers closely, and have seen eight cases of hydrophobia reported, and learned incidentally of three others that were not reported, all of which terminated fatally. These all occurred in a territory that might be considered tributary to Atlanta. Now reasoning on the basis of 20 per cent. of bites developing into hydrophobia and dying, when bitten by rabid animals, there were not less than fifty-five persons attacked and subject to that awful death in the past eight months. As these months were the fall, winter and early spring months, it is reasonable to suppose that April, May, June, and July would furnish as large a proportion and make the total seventy-one who should have had treatment. In looking over the reports of the three Pasteur institutes mentioned, I find only fourteen treated from this

section, less than one-fifth of those bitten. Now what has become of the remaining fifty-seven untreated? Eleven have died and forty-six live in constant dread of going mad. This suffering, anxiety and death could have been prevented if we had here in Atlanta a Pasteur Institute.

Georgia claims to be the most progressive State in the South, and Atlanta the most enterprising city; now let us maintain this claim and prove ourselves worthy of our reputation by establishing here in the heart of the South an institute for the scientific prevention of that most awful and fatal disease, hydrophobia. It could be established in connection with the Grady Hospital or the Atlanta College of Physicians and Surgeons for a very small amount. If either of these institutions will furnish the room and place for the rabbits, one thousand dollars will be ample.

Here I wish to renew my suggestion that we add a new officer to our list to be known as the "Pathologist of the Medical Association of Georgia," and that we have a pathological and bacteriological laboratory for his use. In consideration of this, that he work for members of our Association, giving us a discount of fifty per cent. from regular fees. This would enhance the value of membership in our Association and encourage scientific investigation among our own members. The money for equipping these laboratories can be raised by voluntary subscriptions, or by sale of certificates of membership, or life membership could be revived. If half or two-thirds of a life membership fee will be spent for a Pasteur Institute and pathological laboratory, I will take one, and I believe there are fifty others in the Association who will do the same. The sale of membership certificates at five dollars each will net a good sum. If, after trying all three of these methods among the profession, we are still short a few hundred dollars, I feel sure the liberal and public-spirited citizens of Atlanta, who contrib-

ute so freely to fairs, entertainment of heroes, etc., will, if we are in earnest, raise the balance, and Georgia and Atlanta will have a Pasteur Institute and a pathological laboratory of which we may feel proud.

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Bedford Lecture, Lancet, March 3, 1900.

DISCUSSION ON PAPER OF DR. SLACK.

Dr. V. D. Lockhart of Maysville: It has been my fortune to see two patients who died of hydrophobia. Of all the suffering I have ever witnessed it was the most terrible. Both these patients were about sixteen years of age—a boy and a girl. There was no doubt as to the nature of the infection of rabies in either case. The boy lived about nine or ten days after the symptoms were fully developed, the girl a day or two longer. Otherwise they were entirely similar. Frequent convulsions excited by attempts to swallow liquids, or the mere passage of a draught of air, gradually followed by total unconsciousness and death during a convulsion. Every physician should be interested in the Pasteur Institute. I would be willing to take a life membership or to do anything in my power to avert such disease.

Dr. T. M. Greenwood, of Mineral Bluff: The subject of hydrophobia is one of interest to me, although I have not seen a case of the disease in the human subject. I have seen several cases in animals, and my mind has been somewhat biased as to the true nature of this disease. The statistics are so confusing on the subject that it is an ex-

ceedingly difficult matter to draw definite conclusions. After the Pasteur Institute was established in France, for a number of years I heard that the mortality had not been reduced very materially. We see many case of infantile convulsions that are induced by a slight breath of air in the face, or any slight excitant will produce the same kind of paroxysm in cases of tetanus. I have seen animals get bitten and die from their bites, and undoubtedly death was due to hydrophobia. I do not claim to be an authority on this subject, but I would like to have the members thoroughly discuss it.

Dr. P. R. Cortelyou, of Marietta: I have been interested in the paper of Dr. Slack, and I think it is a timely one. The records show that the Pasteur treatment has been very successful in preventing and curing hydrophobia. In this part of our country we are at a loss to know what to do in case we have a patient suffering with this disease, and from the statements made by Dr. Slack, I believe there are a sufficient number of cases in the State of Georgia and the South to make it advisable to have an institution for the treatment of this disease established in the city of Atlanta.

A short time ago a young man came into my office and said he had been bitten by a rabid animal a few weeks previously. There was no evidence in looking at the wound to show that the man was going to have any particular trouble. The bite penetrated his clothing, and I tried to satisfy him by saying that at this time he was free from all danger, although I did not feel absolutely certain about the future progress of the case.

Dr. H. B. McMaster, of Waynesboro: Since the dog tax was mentioned in the paper of Dr. Slack, I wish to say that perhaps no more important step has been taken by the legislature than in passing the dog act, with the exception

of that measure relating to the public schools. I think there are other charities in our State as worthy as those of public schools, and yet I do not know of any State that donates more money towards its public schools than does Georgia. It strikes me that in the country and small towns, where most of us live and practice, we have no hospital wards in which to put these cases. Now, if there should be passed a State law and money is collected, by expending it for the purpose of building a hospital in each county in the State, it would do more good than it would do by giving it to the public schools. Take our cities, they are taxed heavily for the purpose of keeping up these institutions; our counties in the same way. As Dr. Slack has brought up this matter, I will suggest that if this money is collected it might be devoted to good advantage by establishing a hospital in each county. Of course, to urge the establishment of a Pasteur institute for the treatment of hydrophobia is a movement in the right direction, and I heartily favor the idea. But in the other matter I am more deeply interested because we have so few hospitals in the State outside of the large cities.

Dr. A. W. Griggs, of West Point: The subject under discussion is a very important one. Those physicians who live and practice in small towns do not have the facilities and advantages of their more fortunate brethren who reside in large cities in which there are well equipped hospitals.

With reference to hydrophobia, it is really a misnomer. It is merely a symptom that occurs in connection with a disease. As far back as the time of Benjamin Rush hydrophobia was thought to be caused by a bacillus. It would be well if we could have some institution established in Georgia in which we could treat and properly care for the victims of this dread disease, and meet the emergencies as they arise.

I recall the case of a young man, eighteen years of age, who died with all symptoms of hydrophobia, yet he had never been bitten by a rabid animal. We considered the case one of reflex neurosis, and as there was considerable irritation about the prepuce we resorted to circumcision. The central symptoms improved after the operation, but the patient died with one of the worst attacks I have ever seen.

I do not know how it would be to establish a hospital in the various counties, but in my opinion each county should take care of itself as best it can and use all the means in its power to establish an institution for the treatment of rabies and other allied neuroses. I heartily favor the establishment of such an institution, and I hope some action will be taken toward the accomplishment of this end by the appointment of a committee. Atlanta, the Empire City of the South, would certainly be a good place for such an institution.

Dr. Slack (closing the discussion): I am very much pleased with the reception of the suggestion that we establish a Pasteur Institute in Atlanta. Of course, there is no use to enumerate the advantages of Atlanta; they are well advertised throughout the entire South, and everybody going North must necessarily pass through Atlanta, and that was the reason I suggested it as a central location.

The seventy-two cases that I have noted have occurred in the States of Louisiana, Mississippi, Alabama, Florida, Georgia and South Carolina. I did not include North Carolina because it is as near Baltimore as it is Atlanta. Farmers, who are bitten by rabid animals, if you suggest that they take a trip to New York for the purpose of treatment, are as much disturbed in mind by undertaking such a great journey as they would be by the bite of the animal itself. A little over two months ago an old man was

bitten by a rabid dog, and I suggested that he go to Baltimore. He asked me whether there was not an institute for the treatment of hydrophobia in Atlanta. I told him no, and he said, "Well, I shall have to take my chances on it." I thoroughly cauterized the wound, and up to this time he has not suffered from the disease, but he thinks about it all the time.

I heartily second the motion of Dr. Griggs to appoint a committee to take in hand the establishment of a Pasteur Institute. If we cannot raise the funds among the medical profession, let us appeal to the laity, because they are more interested in it than we are. When a man has hydrophobia, he is beyond our care, and there is absolutely no hope in treating the disease. All we can do is to try and keep the patient quiet.

HEMORRHAGE OCCURRING AFTER THE MENOPAUSE.

E. C. DAVIS, A.B., M.D.,

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I have selected this subject for consideration to-day, not to evolve any profound research, but rather to draw attention to the changes which occur at the climacteric in women, and to warn many from hanging upon the convenient hook of ignorance or carelessness so many of the disturbances which occur at this period. I have been prompted more by the number of inoperable cases of cancer of the uterus which have come to Dr. Holmes's Sanatorium during my association with him than anything else to contribute the paper, that some may be prompted to make examinations more frequently of women with pelvic disturbances at this time, and diagnosticate pathological conditions early enough to offer some hope of relief through operative measures.

The menopause is a physiological condition, and should be entered upon by a woman with normal generative organs without pathological disturbances. There are, however, but few women who reach this period of life with strictly normal generative organs, but even if there be trivial deviations from a normal condition, the disturbances should also be trivial in character. Usually, the so-called "flushes" (due in all probability to nervous reflexes, which produce a dilatation and later a contraction of the superficial capillaries, leading to a sense of heat or "flush") and the few nervous symptoms should, if the change be taking place physiologically, never amount to anything serious.

In cases in which the menopause is advanced, as observed in young women, requiring the removal of the tubes and ovaries for diseased conditions, the nervous symptoms are usually more severe, on account of the changes occurring more rapidly in the generative organs, due to the complete removal of these organs, instead of the slow retrograde changes which take place naturally and extend through a long period of time, usually before the complete functionating power of the ovarian tissue is lost. At the menopause, however, we must remember that the retrograde changes do not occur alone in the organs of generation, but a retrograde metamorphosis sets up in all the tissues, making them less resistant to disease, and more capable of reverting to an embryologic condition. These changes in the tissues occur in the male as well as in the female—usually several years later—and have been called the "male menopause" by some writer.

It is at this time that atheromatous changes are likely to take place in the blood-vessels, malignant diseases make their appearance, and the atrophic changes of the tissues become observable. *When the menstruation has ceased and the menopause is reached, any hemorrhage from the uterus is always pathological, and should be carefully investigated to determine its cause, while the prospects of relief are favorable, even though it originates from a grave condition.*

The causes of hemorrhage at this time are:

(1) *Granular endometritis*, which usually develops before the occurrence of the menopause and is continued throughout. This condition can usually be relieved by a careful curettement under aseptic conditions.

(2) *Atheroma of uterine blood-vessels.* This may be associated with the former condition, and generally occurs in quite old women, or those suffering from atheroma in

other blood-vessels. Such a condition is one which offers but little prospect of relief, as the atheromatous changes have in all probability occurred in other blood-vessels besides those in the uterus. Here, changes in diet, consisting of an abundance of well-prepared meats and fruits, may prove of benefit, with tonics and alteratives.

(3) *Vaso-motor relaxation*, producing a dilatation of the blood-vessels, is a possible source of hemorrhage before the complete cessation of the menstrual flow. This is often associated with granular endometritis, but when alone causing hemorrhage should give no uneasiness. An improvement in the general health by the judicious use of tonics and directing especial attention to the nervous system will correct this disturbance.

(4) *Uterine polypus*, when present, should be readily recognized and promptly removed. If this assumes the nature of a polypoid adenoma, this can easily be removed by the sharp curette, extreme care being exercised to prevent infection, as a curetted uterus is one of the most favorable for infection from extrinsic causes.

(5) *Uterine myo-fibromata*. This, as a causative factor, often occurs at this period of life, and the teaching for many years has exerted a very disastrous effect upon the profession, and occasionally leads to deaths through neglect. At the menopause fibromata are said often to disappear through some retrograde change; and no doubt they occasionally decrease in size, but more often do they continue to increase in size and to menace the life and health of the patient by the continuation of the hemorrhage, in addition to the possibilities of sloughing and infection of the tissues through the putrefactive changes taking place in them while breaking down, and affecting the tissues contiguous. The limits of this paper will not permit a comprehensive consideration of this part of our subject, but I

wish to state as my belief that so-called fibroids, in the hands of proper operators with suitable surroundings, should be removed.

(6) The last cause of hemorrhage at this time, and the one to which I wish especially to call attention, is *carcinoma uteri*. Here it is that the danger signal is held out to observing physicians, and if appreciated, years of comfort and health may be held out to the poor sufferer; but, if unnoticed and unrecognized the poor victim is consigned to a death more horrible than can be described.

All observations go to show that during the early history of carcinoma it is strictly local and circumscribed in its development; but later, through the lymphatics, it soon becomes disseminated throughout the contiguous tissues, reaching such a stage that no hope of relief can be offered, and all attempts in this direction are futile or tend to cast discredit upon a most laudable operation. The cervix uteri is the most frequent seat of the disease, and the epithelioma is the most common form of malignant tumor. The epithelioma, as is well known, when completely removed before the invasion of the surrounding tissues, is less likely to return than any other form of malignant tumor. Malignancy rarely attacks the nulliparous uterus, or one in which there has not been one or more decided tears, and in which there is not much indurated cicatricial tissue. Hence, the importance of repairing promptly these tears, and the complete removal of this weak scar tissue when formed in the cervix. Efforts to prevent conception have been given a prominent place, as a causative factor of malignancy, but I have been unable to substantiate this statement, even though realizing the frowning of nature upon all unnatural acts.

The history of hemorrhage after the menopause, together with the offensive discharge—this discharge having a pecu-

liar, almost a characteristic odor—is almost pathognomonic evidence of malignancy. All such cases should be carefully examined as soon as such symptoms present themselves, and if carcinoma be detected, it should be subjected to the proper treatment as early as possible.

The most rational treatment is complete removal of the diseased uterus, with appendages, before an extension has taken place into the surrounding tissues, or the uterus become bound by adhesions produced by the malignant condition. It has been claimed by some that, in the early stage of the development of carcinoma, there is a non-malignant period, and if the uterus be removed at this time, the recovery is more certain and complete. The probability is that at this stage the uterus is more completely removed, and the recovery is more certain if the conditions are detected early, and the removal promptly accomplished. When the uterus becomes firmly fixed, and the invasion extends high up into the broad ligaments, a hysterectomy is usually useless, and but tends to hasten the fatal result. In such cases, however, a careful curettement and cauterization checks temporarily the invasion, and adds to the patient's comfort.

I have endeavored in this brief paper to call attention to the frequency of carcinoma of the uterus, and the insidiousness of its development at times, and to suggest more frequent investigations of hemorrhage at the menopause, in order that many lives which are yearly being sacrificed to the pernicious ravages of malignancy may be saved, and the patients so afflicted may be spared the years of suffering incident to the neglect in the prompt recognition and treatment of these cases. Either a vaginal or an abdominal hysterectomy may be performed in these cases, the plan of operation depending largely upon the choice of the operator and the experience in these various fields of surgery. If

the adhesions are not very extensive, the uterus free and not much enlarged, a vaginal hysterectomy would be the choice. If the uterus is adherent or much enlarged, the abdominal route would be my preference.

I have, I trust, impressed upon you the importance of early attention to these conditions, in order that they may be benefited when it is possible.

DISCUSSION ON THE PAPER OF DR. DAVIS.

Dr. J. Wesley Bovée, of Washington, D. C. (by invitation): The paper of Dr. Davis is interesting and timely. The old hoodoo of the menopause being the cause of hemorrhage at this time of life in a woman is gradually being exploded, I am glad to say. The doctor has enumerated the causes of this condition, although I noticed that he did not mention sarcoma. I have seen a number of cases of sarcoma of the body of the uterus that required hysterectomy in women varying from sixty to seventy years of age on account of the hemorrhage. In the last three years I recall the case of a woman in whom there was apparently no evidence of disease, but who had for a number of years passed the menopause, and who, after great exertion, as walking up the Washington Monument, would have one hemorrhage, and not another, and no other evidence of disease, such as a discharge, pain, or increased size of the uterus. This and other similar cases have not needed any treatment except rest and caution as to exercise.

In regard to the growth of fibroids after the menopause, I heartily agree with Dr. Davis. I have seen a good many cases of fibroids that were not known to be present until after the menopause, and then grew rapidly. Sometimes they would take on the form of myomata. In many cases it is difficult to differentiate with the aid of the microscope between a soft myomatous growth and a sarcoma, so that

it is a little doubtful whether these may not have been sarcomata.

The effects on hemorrhages from the uterus due to fibroids, and the endometritis concomitant with it, by the use of mammary extract and thyroid extract have been so successful and satisfactory that it is advisable to use them before hysterectomy is practiced. In some cases hemorrhage is controlled completely by these preparations. If the tumor is small, and the hemorrhage can be controlled in that manner, hysterectomy or myomectomy would be inadvisable. There will always be a certain mortality rate following any surgical operation, no matter what it is. They have all the dangers, such an infection, danger from anesthetics, etc.

As to the treatment of cancer, I agree with him almost completely, except that I am not an advocate of the vaginal route for hysterectomy in cases of cancer of the uterus. I believe that cancer of the uterus demands a very radical operation. The operation which was described two or three years ago by Werder, of Pittsburg, in the *American Journal of Obstetrics*, is the one I follow, slightly modified, and that is a combined abdominal and vaginal operation. I believe in the principle that the less involvement you have on account of cancer, the wider should be the operation. The wider the operation, the greater the prospect of eradicating the disease, and the greater the eradication of the disease the more are we justified in resorting to a radical operation.

Dr. J. G. Earnest, of Atlanta: I have very little to say in regard to this paper only to congratulate Dr. Davis on the manner in which he has handled the subject. I particularly concur with him in insisting on the early diagnosis of cancer and of bringing it before the profession. This is a point that cannot be urged too often. It is one

of the most important things that we have to deal with. We should investigate thoroughly every case of hemorrhage that occurs at the time of the menopause. I agree, too, with Dr. Bovée that in these cases of fibroids, if the hemorrhage increases instead of decreases at the time when the menopause should occur, the increased flow is usually due to sarcomatous degeneration of the fibroid. I have therefore, in those cases where a fibroid exists, whether there is hemorrhage or not, if there is a rapid increase in the size of the tumor after the menopause, strongly suspected malignancy and believe that an immediate operation is demanded. I am pleased with the suggestion of Dr. Bovée to make the operation more complete by removing the greater portion of the vagina, as all of the cases I have seen return reappeared at the margin of the vagina where it was cut away from the uterus. His suggestion seems an advance step in the surgical treatment of cancer of the uterus.

Dr. George H. Noble, of Atlanta: I regret that I did not hear the paper of Dr. Davis. Hemorrhage from the uterus at the time of the menopause should always be thoroughly investigated and an early diagnosis made. My personal experience with reference to the operative treatment of cancer of the uterus has convinced me that only permanent results can be expected in those cases that have been diagnosed very early. I have quit operating where there is much ulceration of the cervix. If there is any suspicion whatever of extension of the disease into the broad liga ment or the adjacent tissue, I let the patient alone, for I believe she will live longer, provided we get free drainage of the uterus. My results in such circumstances are very satisfactory, especially in cases of carcinoma of the mucous membrane of the uterus, or in the mixed growths—carcino-adenoma. The diagnosis can only be determined accu-

rately by scrapings, curettings, and careful examinations by very competent persons? Not infrequently, or I may say occasionally, there may be some mistake in the diagnosis. Cases have been pronounced carcinomatous from an examination of the scrapings from the uterus in which operation subsequently proved the condition to be a hypertrophy of the mucosa, perhaps round-cell infiltration. Hemorrhage is a late sign in malignancy except where there is diffuse or polypoidal outgrowth of the mucous membrane. If there is any doubt as to the findings of the microscopist, I favor hysterectomy because a careful examination of the tissues of the uterus will support the diagnosis in many doubtful cases. Early diagnosis is the most important factor, if we wish to effect a cure. I am not satisfied with the results in carcinoma of the cervix, because the extension of the disease in a large majority of cases has advanced beyond the skill of the surgeon.

Dr. T. E. Oertel, of Augusta: I am not a specialist in this particular line of work, but looking at the subject from the view of one who has been interested in microscopical work for a number of years, I am impressed with the fact that only one of the gentlemen has mentioned the making of the diagnosis by the aid of the microscope. In supposedly malignant disease of the uterus, and particularly of the cervix, in my personal experience scrapings are very unsatisfactory, to say the least. In any case of supposedly malignant trouble of the uterus, it is important for the operator and patient to know whether or not the disease is malignant or benign. When we make scrapings there are always blood-clots along with them; the tissues are torn in small shreds, and while sometimes we may get a section that will show us the exact character of the growth, frequently portions of the mucous membrane will be scraped off that are deceptive. One may be led to make a diagnosis of adenoma or of carcinoma, and this error may

occur even at the hands of a good man. These two neoplasms, adenoma and carcinoma of the glandular type, are so very nearly allied that a good many claim that one will perhaps run into the other. We undoubtedly have cases of adeno-carcinoma, and we sometimes may have a distinctly carcinomatous growth in one portion of a specimen, with a distinctly adenomatous growth in another portion of it.

Coming to the epithelioma, which arises more frequently in the cervix, because we have here a coating of squamous epithelium, from the scrapings one would be justified in making a diagnosis and would be more apt to get portions of tissue that would be typical. But after all, if the growth is accessible, it is very easy to remove a wedge-shaped piece, which gives the microscopist a piece of tissue in its entirety, and by removing it with care from the portion where malignant disease is suspected to be, either from the nodular or ulcerated portion, or better still from the edge of such a place, then we have something which is of positive value.

In regard to the degenerative changes of myomata and fibro-myomata, it is very often that we get these degenerative changes in the center of the tumors which may have undergone calcification, when the periphery is still active in its growth. I believe Dr. Bovée mentioned the fact that it is difficult sometimes to distinguish microscopically between a myoma and a fibroma, and generally in the uterus we have myofibroma, and perhaps sarcoma. Where the cells are young and large, sometimes it is utterly impossible to say positively that we have one growth or the other; that we have a benign growth, in other words a fibromyoma, or that we have a sarcoma.

Dr. T. M. Greenwood, of Mineral Bluff: I think it is timely that this subject has been brought before the Association, and I am particularly glad that it has been dis-

cussed by a young man. I think that of all things that have been put in the books on gynecology, the so-called menopause or change of life, as it has been set forth, in some of the older text-books as a pathological condition, has been a greater disadvantage to the human family, and especially to the doctor, than any other one condition. It is a pity that the word ever appeared in a text-book.

The question of diagnosis with the general practitioner is one upon which hinge the lives of many women, and I think any country doctor who makes an accurate diagnosis from the symptoms that he finds, without the aid of the microscope, deserves a great deal of credit. I am glad this subject has been brought up for the encouragement of others as well as myself, and hope it will prompt us to investigate these cases thoroughly. It has been my rule for some time that if a woman has a hemorrhage beyond the reasonable menstrual flow, repeated often, to take it as proof positive that there is some pathological condition present, and, as was stated in the paper, there is no reason why a woman in a physiological condition should not pass through the menopause in the same way that she entered it. It ought to be emphasized, especially among those physicians who practice in the country, and who have to fight for an examination, that these women should be carefully examined.

I recall the case of a woman who was sent to my office who had had a number of hemorrhages from the uterus and who had never been examined, and to my surprise she had a cancerous uterus. I did not attempt to make any fine distinction, but anyhow there was a malignant growth. The woman was on the verge of death, and died in less than three weeks from the time I saw her. She had had symptoms of the disease for eight years. An early examination might have saved her life.

I wish to say a word or two now with reference to the use of the curette. When I began to practice medicine, my professor said it was a dangerous instrument, but I do not think it is as dangerous as it is represented to be. Such teaching has deterred many a young man from doing good and possibly of saving life by its use.

In regard to fibroma of the uterus, my experience has not been any more satisfactory than that of the gentlemen who have preceded me. As to lacerations, I doubt very much whether they produce the conditions that have been mentioned.

NEPHRO-URETERECTOMY.

GEORGE H. NOBLE, M.D., ATLANTA, GA.

MRS. L. N.; age, 27; nativity, English; occupation, housewife. Though born of a tuberculous mother, her health was good up to three years ago. At that time she had typhoid fever. Recovery was protracted and health impaired for two years. For the last year (1898) it has been good, excepting the short period of a few weeks preceding her confinement, which occurred four weeks ago. She then had chills, which continued up to her admission to the hospital. They were followed by pain in the back, left hypochondriac and lumbar regions. Does not live in a malarial locality.

Blood Examination.—Red corpuscles very much decreased (not counted); many large red cells; hemoglobin decreased (50 per cent.[1]); marked leucocytosis; no malarial plasmodia.

Urinalysis.—Specific gravity 1026. Quantity normal, reaction acid, trace of albumin, excess of amorphous urates. No casts.

Physical Examination.—An oval-shaped mass about six inches long occupies the left hypochondriac region. It is smooth and elastic, but does not fluctuate. Its edges are sharp, and the right border bears a characteristic splenic notch. There is some dullness behind this mass, extending in the direction of the lumbar region. The surface is pale; patient anemic: temperature slightly elevated; heart, lungs, etc., negative; puerperium normal. Having excluded puerperial infection and malaria, the location and shape of the

[1] My own estimate.

mass, together with the notch on the border, and the leucocytosis with slight elevation of the temperature, pointed to the presumption of an enlarged, suppurating spleen. (Grady Hospital notes.)

On my return to the city a week later I found an immense extraperitoneal abscess, extending from the diaphragm to the brim of the pelvis, filling the iliac fossa and protruding inward to the median line at the level of the umbilicus (Fig. 1). It was fluctuating and pointing on the border of the quadratus lumborum muscle, where on the

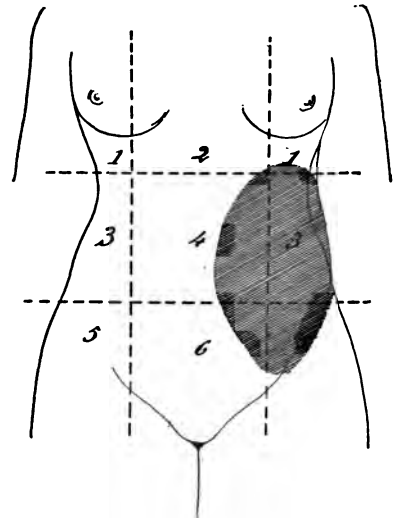

FIG. 1.—Retroperitoneal abscess at time of first incision.

10th of December, 1898, it was freely opened by a two-inch vertical incision. About half a gallon of thin, fetid pus escaped. The cavity extended beyond the reach of the fingers, above the margin of the ribs. Below, the anterior crural nerve had been dissected free for a distance of about three inches, and traversed a portion of the cavity like a suspended cord. The peritoneum was stripped from the iliac fossa to the brim of the pelvis, and the abscess cavity, when

distended, was apparently the size of an adult head. Under irrigation and drainage it gradually closed, leaving a sinus extending upward in the direction of the spleen and also downward toward the iliac fossa. This abscess was due to the extension of suppurative tuberculosis of the kidney into the fatty tissue. Pus accumulated above and behind the kidney and spleen, forcing the latter, which was previously prolapsed, forward and inward, and later, or at the period of greatest distention, upward and out of reach. She remained in the hospital seventy-six days, and left with the sinus discharging a small quantity of seropus.

She returned December 12, 1899, very much improved; color good, and free from fever, except when the fistula would close and cause an accumulation of pus; pain, chills, and fever would follow, and persist until drainage was reestablished. No urine escaped from the fistula. Inspection and palpation disclosed a large, nodular, immovable mass in the left lumbar region, extending from a short distance above the lower margin of the ribs to a point a little below the crest of the ilium and inward to the nipple line. No definite conclusions were drawn from urinary, vesical, or ureteral examinations, except that the left ureter was thickened and strictured about the junction of its lower and middle thirds.

Inoculation of a guinea-pig was attempted, with the view of verifying the diagnosis of tubercular kidney; but the sinus had been thoroughly cleansed with a bichloride solution, which, inhibiting the growth of bacilli, caused a failure. When the house surgeon made the inoculation he was not aware that an assistant had just used the solution referred to.

On December 20, 1899, with the assistance of Drs. Moncrief, Hardin, Hansell, and Jones, of the house staff, I opened the sinus in the line of the old cicatrix (vertical lumbar incision) and traced it deep into the iliac fossa; then, cutting through a thick mass of scar tissue, followed

1-2. INCISION FOR ABSCESSES.
3-4. INCISION FOR NEPHRO-URETERECTOMY.

a branch into the spaces between the transverse processes of the lumbar vertebræ, where three blind sacs were located close to the body of the bones (one sac in each interspace). The upper arm of the (main) sinus ran directly to the spleen and terminated in a cul-de-sac at the lower extremity of that organ. Another fistulous canal, branching off from this one, turned upward in the direction of the left lobe of the liver, then forward, then inward, then downward, and terminated in two tuberculous pockets in the upper extremity of the kidney, which contained thick pus and cheesy matter.

After thorough scraping and cleansing of the sinuses the kidney was enucleated. This required an extension of the incision inward and downward an inch and a half from the crest of the ilium, terminating on a line drawn from the anterior superior spinous process of that bone to the umbilicus. This enabled penetration into the loose or normal fatty tissue about the kidney and behind the old scar tissue of the original abscess pocket, and very much facilitated dissection. In stripping the peritoneum from the cicatricial mass, an opening was made in it large enough to admit the end of the finger. It was immediately closed by small catgut. After extensive and tedious dissection the kidney was turned out and its vessels ligated separately.

The ureter was much thickened, inflamed, and densely adherent to the surrounding tissues, but stripped easily from the fat, beyond the limits of the periureteritis. Fearing that the accident (breaking off the ureter) which has happened to the other surgeons who have done this operation might become my lot, and wishing to make the course of the ureter more discernible to the finger, I made an opening in it about an inch long and introduced a catheter, which met with obstruction at the point mentioned above as strictured, thus demonstrating from the upper side the stricture that obliterated the caliber of the ureter. Failing to pass the catheter, I proceeded to dissect off the ureter with the

index-finger, the whole hand being introduced into the wound.

At the base of the board ligament I encountered the little circular opening with sharp margins mentioned by Kelly.

FIG. 2.—Showing ureter pulled into vagina, and line of incision to free ureter to its junction with the bladder.

This, I am sure, is an aperture in the fascia. On reaching the uterine artery my finger was turned in the direction of Douglas's pouch, thus getting well away from that vessel, and freely separated the vagina from the peritoneum. Sharp-pointed scissors were then forced through the posterior vaginal vault into the space occupied by the finger, and

the blades separated, enlarging the opening, after the method of puncturing large abscesses in this locality. A large ligature was then thrown loosely around the ureter, and its ends passed into the vagina by slipping up a long pair of vaginal forceps from the lower side of the opening. By means of this ligature I drew a loop of the ureter into the vagina. The patient was then turned on her back; the limbs, being extended, were held in the vertical position to prevent interference with the house surgeon, who was preparing the lumbar incision for closure while I was operating in the vagina. My index-finger was passed per vaginam into the opening in Douglas's pouch, flexed forward, and worked down the septum between the vagina and bladder, dissecting the ureter free from the former and pulling the anterior vaginal wall well forward. With a pair of scissors an incision an inch and a half in length along the course of the ureter was made through the anterior vaginal wall as it lay stretched upon the finger; traction upon the loop of ureter protruding in the vagina easily separated it from the uterine artery and the bladder down to its insertion in the latter, while counterpressure was made with the index-finger in the wound. It was ligated directly on the bladder and severed close up. As

Fig 3.—Kidney and ureter after removal.

cheesy matter escaped from the cut end, the stump was cauterized with carbolic acid, after which the ureter was withdrawn through the lumbar wound.

When applying the ligature, pulling upon the ureter drew the bladder down, infundibuliform, into the vaginal orifice, making a sharp line of demarkation where the two joined. At this point the ligature was placed with accuracy; later it cut through into the bladder, became encrusted with calcareous deposits, and escaped through the urethra, producing no bad results. Gauze drainage was inserted in the vaginal and lumbar wounds and removed in forty-eight hours. Vaginal wound healed promptly without suturing. The abdominal and lumbar muscles were approximated with No. 2 catgut and reinforced by through-and-through silkworm suture. Recovery was uninterrupted, though a shallow sinus in the lumbar incision remains.

Some interest is attached to the change in the length and direction of the incision, showing modifications influenced by the progress of the operation. Fig. 4 gives a very clear idea of their location and direction. Morris, of London, made the largest one, which extended from the margin of the twelfth rib to a point very near the pubic spine (line 1-2, Fig. 4). Kelly's first case was a very little shorter (line 1-3, Fig. 4). His second case was done through the short or transverse incision (line 4-5, Fig. 4). My own case was done through the shortest incision, six inches (line 4-6, Fig. 4). Its direction was between the long and short lines above mentioned. The kidney was the largest (16 centimeters) and the ureter perhaps the longest (31 centimeters) ever removed together. The next ureter was 19 centimeters long and was cut about 2 centimeters from the bladder.

I was very much surprised to see how deep one could work through a short incision. This was again impressed upon me a week later when I removed a kidney the size of an adult head through a three-inch incision. It was but

a number of pus sacs, and was extracted like an ovarian cyst through an abdominal wound after evacuation of its contents, separating the attachments as they appeared in the incision. In this case about 10 centimeters of the ureter were removed, and in tying it off I noticed that the

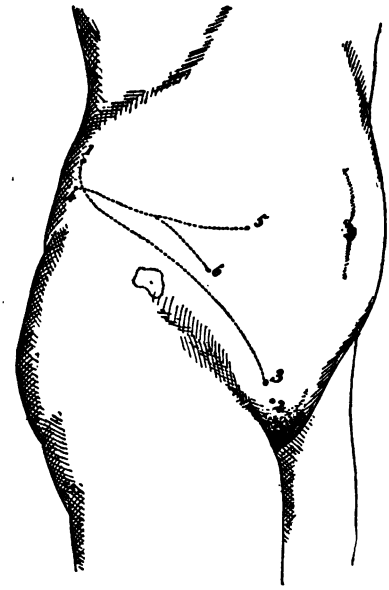

FIG. 4.—1-2, Morris's long incision; 1-3, Kelly's long incision; 4-5. Kelly's short incision; 4-6, Noble's short incision.

immense cavity extending deep in the iliac fossa laid the ureter bare for half its length, so that the removal of the ureter might have been easily completed through a vaginal opening together with the hand introduced through the lumbar region. The latter would have admitted the hand with very little enlargement.

Not having encountered the difficulty expected in removing the ureter, I feel sure that the incision for nephro-ureterectomy should be made with regard to easy and safe extirpation of the kidney, regardless of the condition of the ureter. When the latter requires removal, it may be

done through an opening barely large enough to admit the hand, excepting in cases of accident, hemorrhage, etc., or in the male subject. In the latter a short incision above Poupart's ligament or a para-sacral incision may be employed for the purpose of ligating the bladder end. It possesses the advantage of less injury to the abdominal muscles.

This is the fifth nephro-ureterectomy and the second case done by the extraperitoneo-vaginal method, and the only one of these two in which the ureter and kidney were removed in one piece. Of the five operations thus far done, McCosh and Morris had one each, Kelly had two, and my case makes the fifth.

The chief indications for removal of the ureter with the kidney are tuberculosis and extensive suppurations with calculi.[1] In such circumstances, where the secreting surface of the kidney has been destroyed, the ureter is useless and a hazard to life

Pathological Examination by Dr. Hoke.—Specimen, left kidney, tuberculous, ureter attached. Size, 16 centimeters long, 9 centimeters wide, 7 centimeters at thickest part. Shape, lobulated, cystic, dense fibrous trabeculæ between the cysts, the latter eight in number, on surface. Entire kidney cystic, except upper end. Capsule one-quarter of a centimeter thick. Fat around pelvis plentiful, seemingly uninvolved; 31 centimeters of ureter attached. No break in continuity of ureter. First 7 centimeters of ureter 2½ centimeters thick, other parts 1 centimeter thick. First 7 centimeters nodular, caseous in lumen. Longitudinal section with knife. No trace of kidney tissue left. Fourteen cysts, largest at lower end, 5 centimeters in diameter, all communicating except three. Very fluid caseous material in cavities. Fibro-tuberculous trabeculæ between cysts forming walls.

[1] Suppurative calculous urethritis.

Microscopic examination shows:

Thick fibrous capsule; beneath this, numerous giant cells and conglomerate tubercles, alternating with hard area of coagulation necrosis; few isolated sections of uriniferous tubules; few glomeruli left.

Parenchymatous degeneration of epithelium complete. Some of the glomeruli are fibroid. Great increase in fibrous tissue, both in cortical part of section and in medullary part. Epithelium in tubules in the latter are degenerated as in cortical portion.

Nothing left of normal ureter but fasciculi of muscle. Much caseous matter around the lumen, the remainder of the structure being fasciculi of muscle surrounded by fibroid and cheesy tubercles.

NOTE.—I am indebted to Dr. Bovée for information concerning the names of operators and number of operations.

DISCUSSION ON PAPER OF DR. NOBLE.

Dr. J. Wesley Bovée, of Washington, D. C.: I do not like to consume so much of the time of the Association. The paper of Dr. Noble deals with a very interesting subject to me. The removal of the kidney and ureter dates back to 1859, when Simon did his first operation. His operation was done on account of an injury to or a severing of the ureter during the removal of a cyst some time previously. That was then the method of treating ureteral injuries. This operation is one of a very few. There have been, as Dr. Noble has said, three other complete removals of the ureters with the kidney, that is, primary complete ureterectomies. One was done by a Frenchman, and another by Dr. Montgomery, of Philadelphia. I had the pleasure of seeing Dr. Montgomery do the operation in January. In most cases the extraperitoneal method is the one to be adopted. But unfortunately in women we have the broad ligament to contend with, and it is neces-

sary to operate through the vagina or adopt some simple route because of having the broad ligament to contend with. The operation was very nicely done by Dr. Noble in this case. Dr. Montgomery did his operation by a different method. He began by the vagina, but in his case the ureter was distinctly marked by bimanual examination through the vaginal wall. He began by separating the ureter from the bladder for a considerable distance, making a transverse incision the same side as Dr. Kelly did in one of his operations, and extirpating the kidney, meeting with a number of small abscesses and stones. I was amazed to see the rapidity with which he completed the operation. I would not dare myself to have worked so rapidly as he did, yet he did it well. Of the twenty-seven or twenty-eight secondary ureterectomies, nearly every one of them has been done for tubercular ureter. In one case the ureter was removed on account of a sarcoma of the kidney in a child a few months of age. In another case it was done for hemorrhage into the ureter by Dr. Summers, the clots having blocked up the ureter. He gave such a long technical name that I will not attempt to mention it. The extraperitoneal method is the route for dealing with these cases. There are cases in which the transperitoneal route will be accepted, but we have the danger in such cases of infecting the peritoneal cavity from pus, which is nearly always present.

It is doubtful whether malignant growths of the kidney extend in many instances along the ureter, because the lymphatics run in the opposite direction, and in all of the writings on the subject I have seen there has been no evidence of malignant disease of the kidney spreading along the ureter. Even in the case of Dr. Abbe microscopical examination of the ureter showed no evidence of a sarcomatous process. I have never done the primary opera-

tion, that is, the removal of the kidney and ureter at one sitting. I did a secondary, complete ureterectomy for tuberculosis of the ureter in which the kidney had been removed three years ago, and there were a number of sinuses running down to the region in which the kidney had been, and at the bottom of which I found a number of stones and fatty tissue invaded by pus pockets and sinuses.

I recall a case which I had recently complicating the puerperal state. The attending physician fortunately took the temperature of the woman during labor, which was 102 degrees. The temperature continued at that rate for two weeks. She was delivered on the 31st of January. On the 14th of February I saw her in consultation, and on examination found a large mass in the region of the kidney which fluctuated. I sent her to the hospital to be operated upon the next day. In opening into the kidney I found seven abscesses which I evacuated. Her pulse was 140, consequently I did not attempt to do a nephrectomy. A section of the kidney was submitted to a microscopical examination, and the report of the microscopist was to the effect that it was an adrenal tumor with the presence of pus. I decided to remove this tumor of the kidney, which I did about two weeks later, and found another pus pocket. A few inches lower down the ureter a mulberry calculus was found blocking the lumen. The other kidney was normal. The woman made a good recovery. A rare specimen of adrenal tumor was found.

I desire to congratulate Dr. Noble on the success of his operation, and as having done it by a method the result of his own ingenuity.

Dr. Noble (closing the discussion): I wish to thank Dr. Bovée for his very kind remarks. He mentioned the fact of beginning to operate by the vagina and separating

the ureter from the bladder first. It occurred to me some time ago, when I was studying this subject, and before I had the opportunity of removing a ureter and while interested in the subject of ureteral anastomosis, that such an operation would be the easiest and best. In this case, however, there was such an extensive mass of sinuses running from deep in the pelvis up to the spleen and under the diaphragm and over into the kidney, that I could not very well have pursued a different course, for if the operation could not have been completed the ureter might have been left for a second operation. Upon the other hand had the ureter been liberated first the tubercular sinuses would have necessarily been left. It would have been a mistake to have removed a ureter and leave the upper parts, so I concluded that the best thing to do was to clean out the sinuses, go down to the kidney, remove it, and then if the patient was in a good condition to complete the operation; otherwise I should have pursued the course that Dr. Montgomery did. In uncomplicated cases it will hasten the work.

REPORT OF TWO CASES OF EMPYEMA TREATED BY DRAINAGE AND INJECTIONS.

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In the fall of 1881 I was called to see Mr. E. L. B., aged twenty-four years, in consultation with Dr. Blank. Mr. B. was supposed to be suffering from typhoid fever. His appearance and condition when I saw him could very readily suggest the idea of typhoid. I noticed at this visit marked dulness in the region of the left lung. This was misconstrued as intercurrent pneumonia. A further study of Mr. B.'s case, when a few months later, he came under my care, in consequence of the proposed removal of Dr. Blank, convinced me that the diagnosis of the case was erroneous. I had in the meantime seen him twice. Shortly before my first visit (made in consequence of the temporary absence of his physician), Dr. Blank told me that an abscess had opened in Mr. B.'s lung and that he had discharged a gallon of pus every twenty-four hours for three or four days. Shortly after this visit another supposed abscess opened. He discharged a similar amount of pus. A few weeks afterwards I saw him with Dr. B. to assist in aspirating the chest; a collection of pus evidently making its way to the surface. We removed with the aspirator about a quart of pus. It was soon after this that Dr. B. left, it being evident now that the case was one of empyema and that the supposed abscesses were the result of pus burrowing into a bronchial tube. I found that the trouble had originated from exposure. The house in which Mr. B. lived had been inundated in one of our floods. His bed-

ding and clothing were wet; he had very imprudently occupied it whilst wet, sleeping in the damp bedding. This produced the illness, the pain of the chest trouble being masked by the pain of a severely inflamed eye. The resulting pleurisy (of which pain was not a prominent symptom) was the cause of the fever which was misconstrued as typhoid. Mr. B., at the time he came under my care in January or February, 1882, was in a very unpromising condition. He was extremely emaciated and had night sweats and diarrhea. The former was checked with atropia, the latter by diet. Every four or five days I had to draw off the pus, as he refused to allow the introduction of a tube or tent. The pus was drawn off some ten or eleven times, the amount ranging from a half pint to nearly a quart. The amount was so large and the consequent drain on the system so great that I at length determined to endeavor to check its formation with injection. I first washed out the chest with a weak solution of carbolic acid and subsequently injected a solution of iodine and iodide of potassium. After the use of this preparation, I did not find it necessary to repeat the drainage. Mr. B. began to improve rapidly, his appetite returned, his digestion was good and he gained strength rapidly. On one occasion, being left alone and feeling his returning strength, he thought he would be able to walk. He got out of bed and fell to the floor, where he laid until some one could assist him. When strong enought to walk to some scales in the neighborhood he found that he weighed eighty-five pounds. He gained with astonishing rapidity, increasing in weight by a pound and a half per day until he went up to one hundred and sixty pounds. He has had since that time an attack of typhoid fever. He has been actively employed in business, and now eighteen years after the attack, I find his left lung in perfect con-

dition. He measures thirty-four inches around the chest. The chest is symmetrical and resonant throughout.

Some twelve years ago I was called to see Mr. M. He had been in feeble health for some weeks, dragging himself with difficulty to and from his work, until he finally took to his bed. He was suffering from pain in his chest, and also from pain and stiffness in his knees. He had high fever. He called my attention to what he called a "lump" on his back. I found that where he had been wounded by a shell during the war, and the muscles destroyed and the resistance thereby lessened, that a sack of pus was protruding as large as my fist. I advised that it be opened, and the next day, assisted by Dr. Ramsaur, I laid it freely open, giving vent to a large accumulation of pus intermingled with blood-clots and clots of lymph. Day after day I washed it out, using for the purpose an ordinary bulb syringe. The quantity of clots of blood and slugs of lymph I washed out was astonishing. After being critically ill for a week or ten days he began to improve. The wound closed and the lung resumed its function and gave him no further trouble. The trouble continued with the knees, the joints becoming disintegrated, first one and then the other, so that he could only walk by retaining them in position by a rough apparatus. He still followed his business, that of a butcher, and died last fall of Bright's disease.

THE USES OF SPECTACLES.

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I desire to preface this little paper by saying that it is not intended for those who have made a study of the eye, for whom to listen to it would be only a waste of time, but rather for any who may not have had time or opportunity to spare for the subject, and who yet in the routine of their work occasionally meet with the kind of case with which it deals. In it I have no intention of going into a deeply technical dissertation upon optics as applied to the human eye. But, as ophthalmic surgeons are constantly receiving from other doctors requests to examine patients whose ocular and cerebral symptoms they have been unable to relieve, it may not be uninteresting to consider for a few minutes why so many of these are sent back fitted up with spectacles, even though the vision of a fair proportion may have appeared perfectly satisfactory. This has resulted in the condemnation of eye specialists by some persons within and without the profession as a race of faddists, or even something still less savory. And every thoughtful and sympathetic mind must agree that to put glasses upon any one unnecessarily, and especially upon a child whose recreations and even usefulness may be thereby much curtailed, is a wanton piece of cruelty. Those who have a desire to wear them unnecessarily, like a certain doctor acquaintance of my own, to whom they "gave confidence," are not likely to trouble us, but can, like him, have a pair of frames fitted with plain glass at any optician's store. The point is, when are they necessary, or at any rate really bene-

ficial? To answer this, let us begin by considering superficially for a moment the relationship between the eye and the light which entering carries with it an image of the object looked at. The perfect human eye, and there are few such, is arranged so that parallel rays of light, counted in practice to be such rays as emanate from anything at a distance of twenty feet or over, focus sharply at the most sentient point of the retina without any effort on the part of the eye, and this is a normal or emmetropic eye. When an eyeball has become elongated so that such rays fall at a point anterior to the retina vision is indistinct, because only by very exact and precise focusing on the retina can a proper and distinct outline be obtained. There is no apparatus in the eye to remedy this defect, and vision, unassisted from without must always remain poor for distant objects. But a concave glass of the right strength, and rightly placed, will make the rays of light diverge to the degree necessary to suit the shape of the eye, so that with no effort on the part of the eye they will come to a fine point at the proper spot on the retina. This is an example of the necessity of glasses if clear vision is desired. But rays coming from an object at a distance of less than twenty feet are still naturally divergent when they reach the eye. We have seen that such an eye is fitted without effort to focus divergent rays, and therefore at some point between twenty feet or six meters distance and the eye every such short-sighted or myopic eye (if otherwise normal) can find a spot at which it can see clearly without effort. If that spot be one meter the eye has one diopter of myopia, if half a meter, two diopters, and so no. The eye may therefore be so elongated that the image of a book held at the reading distance may focus on the retina without an effort on the part of the eye. The patient would then require glasses to see at a distance, but it does not necessarily fol-

low that he should not wear them also for reading, as we shall see when we consider the relationship of convergence and accommodation. Another kind of eye is that which is so short in its antero-posterior diameter that the rays of light strike the retina before they have come to a focus This is the kind of eye found in most children and animals. As long eyes are fitted for divergent rays, so short eyes, when at rest, are fitted for convergent rays. But in nature rays never converge, the result being that such hypermetropic eyes, when at rest, cannot have distinct vision at any distance.

Now the majority of human eyes have a certain amount of this defect or hypermetropia, and yet most people see fairly well. They see, however, under a constant strain, with eyes which are never at rest except probably when both are closed. This strain is the endeavor to accommodate, or focus the rays upon the retina, accomplished by the action of the ciliary muscle, which lies like a ring around the lens, and by its contraction so loosens the restraining capsule of the lens that its natural elastic tendency to become more convex, and therefore stronger, is permitted to assert itself. That the action of this muscle is constant is best evidenced by paralyzing it, when it will be found that the eye cannot see distinctly even things at a distance of over twenty feet. As the lens grows older it undergoes certain changes, the most important of which is that its elasticity, and therefore the power of the ciliary muscle over it, slowly diminishes. This accounts for the gradually increasing difficulty which even school children so frequently experience in reading, and a time comes when the power of accommodation is practically lost, the unassisted eye being then able to see distinctly only such objects as may be situated at the distance for which the eye is suited when at rest. When an eye has lost so much of this power of

accommodation that it cannot see properly to read at the ordinary distance, it becomes the eye of old age or "presbyopic." An eye which is normal in length becomes presbyopic usually when about forty-five years old. In the hypermetropic eye we have seen that part of the ability of the lens to become more convex, or to focus, is taken up for seeing things even at a distance. There is, therefore, less remaining to meet the advances of age. The hypermetropic eye for this reason becomes early presbyopic. It is evident that the opposite will be the case in myopia or shortsight, because the eye is still at rest when looking at objects nearer than twenty feet. There is, therefore, some surplus accommodative power, and if the far point of a myopic eye be at a foot (corresponding to about three diopters) the accommodation will never be required at all for reading, and therefore presbyopia will never appear. If the myopia be anything under three D., that is, if the far point be greater than one foot, if the eye exist long enough, it will some time become presbyopic. We sometimes hear of people who in youth had normal or even hypermetropic eyes, and who yet lived to advanced age without requiring glasses for reading. We know that there is a rare senile form of the disease myopia, for myopia is a disease and should be tended accordingly, which might prevent the advent of presbyopia, but it is probable that in many of the cases referred to there is some cataractous change taking place in the lens which, by causing it to swell, fits the eye for near vision. What has been said above is open to some criticism, because, with really advanced age, eyes tend to become slightly more hypermetropic or slightly less myopic than in middle age, but this may be left out of consideration for the purpose of this simple paper.

No argument is required to prove the need of convex glasses in presbyopia. Every presbyope not ashamed of his

years is thankful for the very evident comfort which they bring. But it is different with a young hypermetrope. He knows he can see distinctly at a distance, and possibly even for a little time close to his nose. If he is robust and not over sensitive, the strain upon his ciliary muscle may not trouble him. He may never even know his eyes are defective, and in many such cases glasses are unnecessary. But should his health deteriorate, or should he be naturally of a sensitive disposition, a comparatively small amount of hypermetropia may entail more strain than he can comfortably bear, and headache and nervousness may ensue, which still farther affect the health. The convex glasses will converge the light rays upon the retina without undue effort upon the part of the eyes, and remove whatever discomfort may have resulted from overstrain of the ciliary muscle—an other instance of the real benefit of glasses. We have hitherto been speaking of eyes in which the curvature of the cornea is uniform in all directions. But many eyes have two different corneal curvatures, one at right angles to the other, so that the rays passing through the vertical curvature focus at a point distinct from that for the rays for the horizontal curvature. The two curvatures are not necessarily horizontal and vertical—they may be oblique. One curvature may bring the rays to a focus on the retina, the other either in front or behind it; or both may be in front of it, or both may be behind it; or one may be in front and the other behind. Thus we get the various forms of astigmatism.

It is evident that astigmatic people never see clearly anything at any distance, though some of them in their ignorance scorn the suggestion. Astigmatism is the refractive error which on the whole gives rise to most trouble. The ciliary muscles is ever trying by one-sided contraction to bring the lens to such a form as will neutralize that of the

defective cornea. This is mostly in vain, and even if successful is not a painless effort. The number of symptoms, near and far, which are by some put at the door of astigmatism is neither small nor unimportant. They range from inflammation of the lids and conjunctiva to headache, digestive derangements, chorea, epilepsy, and even insanity, and certainly the relief afforded by glasses to many general symptoms is frequently remarkable. One gentleman called the blessing of Heaven upon my head because his glasses enabled him to return to his old habit of chewing tobacco That was the only reason for which I was sorry I had cured him. It may be said that practically all cases of astigmatism are better off with spectacles, and it is not always the cases with the greatest amount of refractive error which benefit most. A very small amount may cause great trouble to a sensitive nervous system. To find the proper glasses each curvature has to be measured separately. As astigmatism affects the vision at all distances such glasses have to be worn constantly to afford their full benefit. It must be borne in mind that though there is generally much similarity between the refraction of the two eyes in each individual sometimes they are totally different.

There is one set of muscles having an interesting relationship to spectacles to which reference has not yet been made. These are the external muscles which move the globe upon its axis. In some respects the two eyes are, and ought to be, looked upon as one organ. The image of an object must fall upon exactly corresponding places in each eye, or double vision will result. The right side of the two eyes correspond, so do the left, and so on. Each eye must therefore be capable of being directed squarely upon the object, whether it be near or far. When near the axes must converge, necessitating a strong effort on the part of the internal recti muscles, an effort which it should be carefully observed is associated with that of accommodation for the

same distance. This association has become so deeply planted a habit in human eyes that when it is thrown out for any reason trouble is very apt to follow. In normal eyes accommodation and convergence bear their usual relationship. But if accommodation has to be excessive, as in hypermetropia, it is hard to prevent convergence being equally excessive. If excess of convergence is prevented by contraction of the opposing muscle, then the effort is likely to give rise to pain in the eye and headache, and at any time when weakness overcomes the patient he may be unfit longer to continue the effort to prevent it, and excessive convergence will manifest itself. The reason is thus evident why convergent strabismus is so usually associated with hypermetropia, and so often first appears during or after some slight illness, about the age when a child is first beginning to use his eyes for near work. When convergence is excessive the images fall upon unassociated parts of the two retinæ, reaching the brain separately, and double vision results. This is so unpleasant to most persons that they soon learn to suppress one of the two images; *i. e.*, the brain learns to take no notice of it, and only one eye at a time is used. On the other hand, in myopia there is the usual necessity for convergence for near objects with a diminished stimulus to it, because the need for accommodation is lessened or entirely wanting. Divergent strabismus is usually associated with myopia. Squint or strabismus is a very important field for the use of glasses. By bringing accommodation and convergence to their proper relationship the true axes of the eye and binocular vision may in a large number of instances be restored, though the glasses at times require to be supplemented by other measures in order that complete cure may ensue. When the eyes cannot be brought fittingly to suit the rays, the rays may sometimes be brought to suit the eyes. This is done by glasses in the form of prisms which bend the light in the required direction.

SUGGESTIONS ON TREATMENT OF PUERPERAL ECLAMPSIA AND POST-PUERPERAL KIDNEY LESIONS.

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The etiology and pathology of puerperal eclampsia is an unsettled question at present. A few years since it was generally considered due to uremia; now most writers agree that it is toxemia.

As to how and where the toxic material is developed there is difference of opinion and various theories.

From clinical experience we learn that death of the fetus materially lessens the danger of eclampsia, which is certainly strong presumptive evidence that the living fetus elaborates a toxic material which is a factor in the production of eclamptic seizures.

We also learn that emptying the uterus in most cases helps to relieve the patient.

As soon after labor as nature can adjust herself to the changed conditions, a process of elimination is instituted and a return to the normal established, provided none of the vital organs are so seriously impaired that they cannot perform their functions.

It is claimed by some of late that the physiological hyperplasia of the thyroid gland during pregnancy acts as a kind of safety valve in the destruction of the toxins developed by the uterine metabolism during pregnancy, thereby preventing eclampsia and serious impairment of the kidneys and other organs.

If this be true, clinical experience in the future will demonstrate the utility of administering thyroid ext. to these cases, at least as a prophylactic measure.

The presence of albumen in the urine during pregnancy does not always indicate serious trouble, neither does its absence preclude the possibility of eclampsia.

I have had three cases within the last eighteen months in my own practice in which there was no previous evidence symptomatically or in the urine to indicate impending danger. Two were primipara, one thirty-eight years, the other twenty-one years of age, both had convulsions during labor; a third multipara, delivered of twins and eight hours after had convulsions. After convulsions, in each case albumen appeared in urine and later sugar. All three recovered.

In controlling convulsions veratrum vir., Norwood's Tr., stands at the head as being safest and most certain. It not only controls convulsions, but favors elimination by diuresis and diaphoresis. It depresses the motor centers in spinal cord, lessens pulse rate, reduces temperature, conserves vital forces of patient and lessens tendency to infection, while remedies that depress or interfere with elimination favor septic invasion. Veratrum should be used hypodermically at first in five-to-ten-drop doses, later combined with a diuretic such as elix. buchu juniper and acetate of pot., given at regular intervals *per orem* to prevent return of convulsions and increase elimination.

Chloroform should be used for temporary control of convulsions. Apomorphia is a prompt, reliable remedy, but it depresses and nauseates patient.

Venesection depresses, weakens vitality, favors infection, should rarely be used.

Morphia checks eliminations, increases stupor, and is un-

certain. Chloral and bromides are uncertain but good adjuncts.

Veratrum administered as indicated above and repeated in sufficient doses to hold pulse near the normal range, with rapid clearing out of alimentary canal by use of calomel and salines, establishing elimination by kidneys, skin, liver and alimentary canal, puts patient in most favorable condition for recovery. Emptying uterus is an important consideration in these cases.

Authorities class the death-rate at 25 to 35 per cent. previous to delivery, and at 7 per cent. in *post-partum* eclampsia. So it must be considered that the danger of death is practically over in a great many cases when patient is delivered.

Yet judgment and discrimination must be exercised, and not add too much to the exciting cause of convulsions nor lessen patient's chances of recovery by a too rapid or heroic method of delivery.

Hysteria, epilepsy and apoplexy must be excluded; then good practice would be, in all cases where cervix is not sufficiently dilated for safe forceps delivery, nor comparatively easily dilated by fingers and hand, to wait until parts are properly prepared for labor. In such cases cleanse and disinfect vagina and cervix, carry a strip of iodoform gauze *aseptic* or made antiseptic, up into uterine cavity with uterine dressing forceps as far as it will go; pack lower uterine segment and cervix snugly with the continued strip of gauze. Then dust boric acid into vagina freely and pack same with gauze and absorbent cotton. All gauze used should be dusted with boric acid, and if too dry to use easily moisten with a weak carbolized solution.

This will institute labor, soften cervix, establish drainage from uterus, and render it possible to complete labor safely in twelve to twenty-four hours in most cases.

While waiting control convulsions as above indicated, clear alimentary canal, give diuretics, establish elimination by all means possible at command. The incision of cervix and mutilating operations are rarely, if ever, justifiable.

The prophylaxis and indications for emptying uterus in threatened eclampsia do not come within the scope of this paper.

The etiology and pathology are briefly mentioned only where they bear direct relation to treatment.

The ordeal of eclampsia and labor having passed, most cases are fairly convalescent by the time the lying-in period is passed. Yet in a goodly number serious lesions of the kidneys remain, and no obstetrician has discharged his full duty to his patient who does not watch and treat these cases until not only all albumen, but all blood, pus, kidney epithelium and casts disappear from urine.

I am fully convinced that in many instances where kidney lesions develop during pregnancy in cases with and without eclampsia, that proper care and treatment will prevent permanent lesions.

After a trial of various remedies in these cases, I have adopted the following general outline of treatment:

Peroxide of hydrogen is given in one-half to teaspoon doses in as much hot lithia water as patient can drink taken a short time before meals.

A diuretic tablet, containing 1 gr. each pulverized digitalis, squills *nit.* pot. and buchu, is given three times a day with plenty of lithia water to flush out kidneys.

A bitter tonic is given at meal-time. The following I find most beneficial:

Strych. nit. .... gr. ss.
Fluid hydrastis *colored*, Merrill's,
Glycerin ....aa. ℥ ss.
Listerine..... ℥ iii.
Lactopeptin syr. with phosphates. q. s.....℥ viii.
M. Sig : Two teaspoonfuls in a little water at eating.

Bowels are kept in a laxative condition by remedies best suited to the individual case.

In weak anemic cases some form of iron should be given.

The peroxide of hydrogen I consider one of the essentials in treating these cases. It clears out and cleanses stomach and has a special effect in clearing up the pus, casts and blood in the urine. Some authorities claim it is eliminated by the kidneys. If that be true then its action on pus coming from kidneys in these cases, or bladder in cases of cystitis, is explained.

It would necessarily be diluted by the time it reaches the kidney or bladder, hence slow in disintegrating pus corpuscles and the evolution of gas so limited as not to produce deleterious effects. When not too strong has but little effect on vital tissues.

I find pyrozone 3% solution more stable and certain.

The action of the other remedies needs no comment except to emphasize the action of the fluid hydrastis. It is generally recognized that impaired digestion, overeating, especially of heavy diet or such food as tends to produce lithemia, predispose to or aggravate kidney lesions.

A restricted diet, with improvement of digestion and assimilation secured by use of hydrogen dioxide and bitter tonic are potent factors in the relief of these cases. Systematic lung expansion and daily baths properly adjusted to each individual case, supplies oxygen to blood, tones up nervous system, favors oxidation in the tissues, increases

cutaneous elimination, all of which lessen irritation and work of kidneys.

In conclusion I briefly report three cases:

Case 1.—Called in consultation to see Mrs. S. aged 30. Multipara, full term, having convulsions, in second stage of labor; gave ten drops veratrum, Norwood's Tr., hypodermically, delivered with forceps, child dead and decomposing; carried hand up into uterus to remove bits of decomposed membranes, etc. Irrigated, disinfected uterine cavity, applied antiseptic vulval dressing with binder. After my arrival patient had two convulsions, before and two after delivery, one occurring as I entered room.

Veratrum was repeated and patient kept under its influence for some days.

Urine coagulated almost solid, contained pus, large hyaline and some granular casts, deficiency urea, very pale, low sp. gr. Patient had all the characteristic symptoms of profound toxemia. After months of treatment, the eye symptoms and kidney lesion cleared up. She became pregnant eighteen months afterwards, was carried through full term labor and delivered of dead child without special complication or return of kidney lesion. At no time did albumen appear, no casts, no toxemia discoverable.

Case 2.—In consultation. Mrs. R., aged twenty-eight. Multipara, eight months pregnant, in convulsions, semiconscious, convulsions controlled with veratrum; cathartics and diuretics given.

Patient delivered next morning. Urine coagulated almost solid with heat and acid—sp. gr. 1008—large hyaline casts, pus, blood, kidney epithelium. Symptoms of profound toxemia, almost complete loss of vision, eyes examined by specialists, confirming albuminuric retinitis. Under ordinary treatment for some weeks failed to improve, then placed on pyrozone, diuretic and bitter tonic—

the urine soon cleared up, pus, albumen and casts disappearing. Vision gradually returned to near former standard. This patient also became pregnant about one year afterwards and delivered at full term without special complication.

Case 3.—Mrs. P., aged twenty-eight. Primipara. Saw her first three months after delivery, giving history of kidney trouble with profound toxemia at labor and afterwards. Now weak, anemic, pulse 120 to 130, heart murmur of anemia, dyspnea marked, propped up in bed to get any relief, temperature sub-normal, edema of extremities, abdomen distended, approximately two gallons of fluid in peritoneal cavity, urine pale, sp. gr. 1005, deficient in quantity and urea, albumen, pus, and a few granular casts present.

Under treatment urine cleared up, fluid in peritoneal cavity absorbed and eliminated, heart murmur ultimately disappearing. After fluid was absorbed, local treatment corrected a subinvoluted, retroverted, slightly adherent uterus.

Patient became stout and healthy. Sixteen months afterwards became pregnant. In about six weeks took typhoid fever, and while convalescing, nausea and vomiting of pregnancy set in and proved very, very obstinate. At no time was there any evidence of kidney lesion or heart complication except a general weakness. The President of this Society saw patient and advised emptying uterus. After waiting a few days longer with a hope of getting relief otherwise, I rapidly dilated cervix, emptied, disinfected and tamponed uterus in twenty minutes, with very little loss of blood. Work done without anesthetic.

Patient gradually improved and made uneventful recovery.

DISCUSSION ON DR. KIME'S PAPER.

Dr. J. W. Duncan, of Knoxville, Tenn.: I heartily concur in nearly everything that has been said by Dr. Kime in his excellent paper. In cases of eclampsia I find pilocarpine a very useful agent where we desire elimination by the skin. Veratrum viride is also an excellent remedy.

Dr. O. B. Bush, of Colquitt: I cannot fully agree with Dr. Kime. I cannot accept one or two things mentioned by him. I know by personal experience that venesection is the quickest thing we have for puerperal eclampsia. In the treatment, for the purpose of relieving the eclampsia, I use a preparation of bromide of potassium twenty grains and chloral hydrate twenty grains each to the dram, which I regard as one of the finest things we can use. This preparation brings about elimination both by the kidneys and lungs. The disease is toxemia to a great extent. The venesection brings about elimination of the poisons in the blood in a more rapid and certain way than through the skin and kidneys, therefore I fail to see the consistency in the argument of Dr. Kime when he says that the patient is liable to contract septicemia from the operation, because the poisons are coming out of the body instead of going in as he argues.

The bromo-chloral counteracts the nervous excitement and arrests the convulsions.

DIAGNOSIS AND ETIOLOGY OF IDIOPATHIC FEVERS.

F. M. BRANTLY, M.D., Senoia, Ga.

Causation is the great problem everywhere sought after and evokes the aid of every department of science. Theology discourses on theoretical imagination, seeking to build facts on immateriality. A fulcrum is essential to all physical power. In like manner matter is the foundation upon which science must build, beginning at the concrete and ending in the infinitesimal. Every department of physics has its votaries, among which is found in prominence the disciples of Æsculapius, whose innings are constantly revolutionizing all medical departments, and developing the hidden mysteries of nature, bringing to light truth and setting aside cherished and long-lived traditions of the fathers, astounding themselves and the world to see what a day of small things can bring forth. The phantom cure-alls of to-day who seem to have the world in swing are gone to-morrow, and others more pretentious come in their places to deceive the credulous. These blatant monstrosities only await in turn to be knocked out by others, until science shall have demonstrated its triumphs and forever put to rest the calling of the mountebank. Etiology is a big word and means much; it goes from branch to root; its working is seen and felt all through the physical stamina, is much talked about but less known. Let us study it in fevers for a few moments.

Fever derives its name from pyrexia, heat, and is said to originate from nervous disturbance by some. However, nosologists differ widely in their views on the causes that give rise to the excess of heat. In the absence of any settled opinion as to this phenomena we would conclude that the combustion going on in the lungs, together with excessive heart action to eliminate the morbific cause, as does excessive exercise elsewhere producing friction, results in generating caloric. Hippocrates, Broussais, Paracelsus, Cullen, Brown, and others were divided in their pathological and etiological views. Some contending that all diseases originated in the solids; others that the fluids were the *fons et origo* of all diseases. The two contending parties and their successors fought it out on the two theories for ages, while humanity suffered on account of practice conforming to theory.

Plausible theory that does not conform to fact is a constant menace to humanity. Theory is the life of empiricism and is the hobby of mountebanks. In the absence of knowledge theory always asserts itself and tenaciously holds its ground until set aside by solid fact; and then it lingers long and dies hard. It is no wonder that medical men disagree because of so limited a knowledge of vital phenomena; and as an excuse for the unknown men will cobble up a theory, sometimes plausible and sometimes a miserable makeshift. Arbitrary nomenclature doubtless has as much or more to do in confusing the minds of medical men than any other thing. When you consult the current authors you are constantly confused and confronted with the various names given to the same disease. Idiosyncrasy and fortuitous circumstances have much to do in these diversities; while the causation is the same, the effects are dissimilar, as the cause may be more or less virulent, and so of the effect, and then temperament has

much to do in showing different aspects produced. These accountable or unaccountable phenomena give rise to the unwarrantable and ambiguous names given to diseases arising from the same fundamental cause. We know that vegetable decomposition generating microbes or miasm, imbibed into the general system by the various inlets, produces malarial fevers; and that these fevers, whose names are legion, and all amenable to treatment, and *sui generis* and curable by their antidote, which destroys the plasmodium of malaria, including the quotidian, tertian, quartan, estivo, congestive, algid, etc., all brought about by the same cause and amenable to the same remedies, which are known to destroy the parasitic microbes in the blood, whose cycles are said to characterize the stages of pyrexia in all fevers produced by their infesting the corpuscles and plasmodium of the blood. This class of fevers may be all grouped together and offer work for the diagnostician, who will not materially err when bearing constantly in mind these suggestions.

The habitude of this miasm is almost always found in localities where moisture, warmth and vegetable decay exists. Some contend that the mosquito bite produces the toxic effects of malaria, and that the various kinds produce the various grades of these fevers. But that idea is precluded by the fact that in many places where these parasites abound there are no malarial fevers, and *vice versa*. The red corpuscles of the blood seem to be the favored pabulum for malarial microbes, and in their evolution produce the sthenic and asthenic changes, and the anemic condition always found early in these fevers and never in typhoid until ten or fifteen days have elapsed. Either from lack of close observation or for sinister motives some medical men are always ready to pronounce synocha or synochus fevers typhoid, or if they apprehend a reversal

from any source they compromise on the term typho-malaria, a misnomer but an easy term to get out on; and to make their diagnosis more plausible roundly assert that malarial and typhoid fevers can and do amalgamate, and then readily conclude, or else try to have others conclude, that they cure typhoid fevers, thereby gaining a fictitious notoriety. That class of healers stand between the ten commandments and the code of ethics; so when I hear a doctor say that he cures typhoid fevers, then I mourn for human depravity.

Within the past half century kaino-miasmata, as it was then called, was regarded as a contagium located and originating in the cerebro-spinal periphery, the effect taken for the cause, which gave rise to much empirical treatment; when fact takes the place of theory treatment is revolutionized. Theory means talk! Facts mean action! Nature is said to be animate and inanimate and that nothing is annihilated, that chemical changes make up about all that is in nature; the line between we are not prepared to define. So we are unprepared to say whether malaria is the outcome of one or both, whether it be microbic or gaseous in its incipiency. From the animalcular theory as propagated by Manson, Maccallum, Ross, Laveran and others who have conducted experiments to prove their theory, much valuable information has been evolved; and we trust that chemistry may be invoked to look into the atmospheric and gaseous aspects, that we may look for the initiatory source of miasmatic disorders.

Another separate and distinct idiopathic fever, called typhus, or typhoid, is but one disease, and is the outcome of another kind of miasmatic microbe, generated from animal effluvia, emanating from animal excreta, and when effectual is capable of infection by contact, and is nowise controlled by heat or cold, prevails in winter or summer, and unlike the other variety, has no known antidote, but

is now anxiously awaiting scientific investigation and inventive genius to reveal, as in the vegetable microbe, a remedy that will destroy typhoid bacillus. To our great allies, chemistry and pharmacy, we look for the antidote. We imagine that we are nearing the time when a remedy will be found, as in the others, to cut short this dread monster, that has always been a scourge to humanity, and he who shall make that discovery will have justly a name equal to that of Jenner. Up to the present time no known remedy avails either to cure or abort this disease, and all pretenders to the contrary are doomed to failure. No treatment can be relied on, and the experience of ages is to treat typhoid expectantly and then not to expect too much, because in many cases where the patient apparently in the beginning had an ugly prognosis, yet he comes out in the end much better than the one who began with apparently a mild case. Your orator, after over a half century's practice and always on the lookout for cause, has almost always found it in either or all, to wit, hog-pens, privies, wash places, or about the dumping grounds from the culinary departments, and has often seen the spread of this fever arrested as strict sanitary regulation was had, both in and out of the premises. Typhoid and typhus are synonyms of one and the same disease, whose microbes, according to their discoverer, Laveran, are distinct from that of malaria and have the same nidus in the blood corpuscles but are widely different in development and duration, more insidious in movement, time of development and longevity. This fever is often confounded by casual observers with the autumnal estivo-malarias, resulting in the unscientific and misapplied name of typho-malarial fever, in which it is supposed coexisted the two diseases, typhoid and malaria; but all evidence at present shows these cases to be simply a pernicious type of malarial fever

uncomplicated with typhoid admixture. The clinical appearance may so nearly simulate typhoid that a correct diagnosis may require an examination of the blood. However, the following points of observation may aid in diagnosis: Herpes is common in autumnal malaria, unusual in typhoid. Delirium may appear early in malaria, rare in the early stage of typhoid. Abdominal symptoms as well as bronchial are usually early in typhoid, unusual in malarial. Anemia is early in malaria, late in typhoid. Temperature is more vascillating and covers a wider range in malaria.

It does not legitimately come within the purview of this paper to allude to treatment or therapy, but I can but allude to the diversity of opinion of eminent men in regard to theory and treatment of typhoid fever. Both are but poor substitutes for facts, and it is amusing to behold with what tenacity men hold to particular remedial agents that they concoct to suit their special theory, and as typhoid is not amenable to known remedies, a wide field is opened for empiricism and empirical remedies, a large proportion of which serve to either kill time or patient.

THE CONTINUED USE OF THE ANTISEPTIC AND ELIMINATIVE TREATMENT OF TYPHOID FEVER WITHOUT ANY DEATHS.

T. VIRGIL HUBBARD, M.D., ATLANTA, GA.

Continued and uninterrupted success with the antiseptic and eliminative treatment, with convincing clinical illustrations of its inevitable correctness, forces me to disregard the sage advice of Shakespeare and repeat some remarks I made before this Association one year ago. Assuming the risk of being ridiculed for repeating the truth, and perhaps denounced for making it so emphatic, I acknowledge my cheerfulness to submit to either, if by so doing I may induce some of my professional friends to cast aside their theoretical objections, which are too often but the delusions of a dream which can be swiftly dispelled by the awakening light of clinical experience with the treatment.

With profound respect for those gentlmen (for some of them I love) who differ with me from a theoretical standpoint, I must confess a failure to see the logic in attempting to combat clinical results with theoretical argument, and especially when that argument is based on an acknowledged inexperience with this treatment and is influenced and sustained by the passion and prejudice naturally engendered by following for years a contrary course of treatment. If medicine were an exact science, if we could demonstrate the correctness or incorrectness of its theories as we can a mathematical problem, there would then be some logic in resorting to mere argument to meet the mor-

tality statistics, but at the present time the court that renders the final decision, and from which there can be no appeal, is the number of deaths which follow from this or that line of treatment. That we are all creatures of habit and routine is unfortunately too true, and medical men are no exception to the general rule. A study of the history of medicine reveals the fact that all new theories or advances in treatment undergo a struggle for existence in their infancy, and the friends of this treatment are not in the least discouraged because it is undergoing the fire of denunciation and criticism which characterizes the radical change of any established treatment. It would be nothing short of a miracle if the medical profession should spontaneously adopt the eliminative treatment, which is almost the opposite of what has been taught and practiced for the past twenty-five years, regardless of its correctness or incorrectness. A child reared in a Protestant family, and who has been taught the edicts of that religion, is not likely to embrace Roman Catholicism, and *vice versa*. So the young man who is taught in his college course that cold water is the proper treatment for typhoid fever, and has practiced it for years after leaving his alma mater, is not likely to adopt the eliminative treatment without indubitable evidence of its correctness.

I will briefly repeat the treatment which I recommended in a paper before this Association one year ago, and I have very few additions to make to the same. When called to a case of typhoid fever, I usually commence by giving the patient a capsule of calomel 1-2 gr., guaiacol carbonate 2 grs., podophyllin 1-20 to 1-40 gr., every two hours for twenty-four to forty-eight hours, depending on the condition of the bowels. I continue this until I have secured four or five intestinal evacuations for two successive days, and then I leave off the calomel and add 1-2 gr. of menthol

to the guaiacol and podophyllin. If, after discontinuing the calomel, there is any tendency (as there frequently is) of the bowels to become inactive, I administer a small dose of salts or Hunyadi water in the morning. I always endeavor to secure at least two or more evacuations daily, depending upon the temperature and the condition of the bowels. If, after four or five days of treatment, the temperature remains high, or rises after having remained stationary, I again resort to the calomel as before for twenty-four hours, or less as necessary, and it invariably reduces the temperature and results in a general improvement in the patient's condition. I continue the administration of guaiacol and menthol throughout the course of the disease.

In addition to this I frequently resort to the administration of normal salt solution per rectum, and have been very much gratified with its results, especially in those cases where the skin and kidneys failed to act well. It seems to me in any toxemia normal saline solution would do good by diluting the poison in the blood and favoring its elimination by the skin and kidneys, and in cases of very high fever or severe toxemia and an exhausted condition of the patient I would promptly resort to its subcutaneous administration.

I will consider first the least important, the antiseptic part of the treatment. It has been said by the opponents of this treatment that it was impossible to render the alimentary canal aseptic by the administration of drugs, an opinion in which I have always heartily concurred, but I was surprised a year ago to find opposition to this treatment from some of our surgeons who practice aseptic technique in their operations, for if they will only reflect for a moment it is this same broad principle which applied to surgery has rescued it from a chaotic state of empiricism

and elevated it to a scientific basis. Would any modern surgeon fail to wash out and drain an abscess cavity because he could not render it aseptic at the first operation? Should he fail to irrigate an infected wound because he cannot cleanse it of every drop of pus and every micro-organism at the first irrigation? If a patient is bleeding from three ruptured arteries, and from an anatomical situation one of them cannot be reached, does it lessen the obligation of the surgeon to place a ligature around the other two? So in typhoid fever, if we cannot thoroughly disinfect the bowels and thus reach ideal results, must we peacefully fold our hands and acknowledge with mortification and chagrin that we can do nothing but amuse the patient by pouring cold water on the skin? Is this the course the surgeon pursues in a case of infection? Is it not our plain and unequivocal duty, with our present knowledge of causation and pathology of typhoid fever, to resort to those measures: First, that will remove so far as possible the offending agent from the bowels, and secondly, render the intestine so far as possible an unfit culture tube for multiplication and development of the various micro-organisms which are to be found there, as well as to prevent fermentation and putrefaction of food products? Is not the efficacy which has for a long time been attributed to that good old remedy, turpentine, been due almost entirely to its antiseptic properties? But whatever may be said in favor of the administration of intestinal antiseptics in typhoid fever, they play an insignificant part as compared with those remedies which have for their function the promotion of elimination from the system of the toxins, by stimulation of the emunctory organs. It is to the accomplishment of this result that the successful clinician will chiefly address his efforts.

To those who have attempted to refute something I have

never claimed in reference to intestinal antiseptics, I would most respectfully invite their attention to the *eliminative* part of this treatment. I presume no one is so obsolete in his views as to maintain for a moment that the intestinal ulceration *per se* in the bowel wall is the cause of the constitutional symptoms of typhoid fever. If so, how does he account for those fatal cases of typhoid in which no intestinal lesion is found post mortem? The most convincing fact gleaned from my experience with the eliminative treatment is that entirely *too much* importance has heretofore been attached to the *intestinal ulceration* and too little importance to the *constitutional condition of the patient.* The sins of omission are too numerous to mention which will be justly heaped upon that timid physician who sits by a case of typhoid waiting and expecting perforation of the bowel or fatal hemorrhage, while assuming an attitude of passive indifference, fearing something which in the large majority of cases will never happen, and on this account withholding both food and drugs while the life of his patient is surely but slowly ebbing away from starvation and toxemia. That a healthy reaction has set in against a too restricted diet in typhoid fever no one can deny who is familiar with recent articles in the leading medical journals. I am convinced a large number of typhoid patients have died from want of food, and it is equally true that a great many have passed to the "beyond" because they were unable to digest and assimilate what was given them, owing to the torpid condition of the liver and diminished secretion of gastric and intestinal juices, which could be largely overcome by the administration of proper drugs. The ulceration of the bowel has been the great bugbear of the physician; the objective point on which he has centered his therapeutic vision, and if it does not produce perforation or a fatal hemorrhage

it is of no more prognostic significance than if it were on the leg of the patient, barring the exception that it may act as an absorbing surface for other germs than the bacillus of Eberth. While the attention of the physician has thus been directed to the condition of the bowel and temporarily distracted by the fear of perforation or a fatal hemorrhage, which only occurs in about two or three per cent. of the cases, he has wilfully and persistently neglected those measures at his command which would prevent the death of his patient from exhaustion and toxemia. Some old writer has said that the physician should always obviate the tendency to death, and we can sometimes learn more from one case that dies than from ten cases that recover by studying the cause of the death. I think we will gain some practical information by closely observing the cause of the tendency to death and become more active in the use of those remedies to combat that tendency. The sooner we look upon typhoid fever as a constitutional poisoning of the system very similar to an average case of septicemia, and treat it accordingly by assisting nature to eliminate the poison or destroy it in the system, the sooner we will diminish the mortality of this disease.

There are certain proven facts about this disease that I think all will agree and accept. *First, that the cause of typhoid fever does not originate de novo in the human organism, consequently it must be introduced from without. Second, that this causative agent introduced from without and the poisonous products it generates within come under the definition of constitutional poison, and may be found in almost every tissue of the body. Third, at the present time we do not possess a direct chemical antidote whereby this poison may be changed into a harmless compound.*

With these propositions admitted—a poison introduced into the system, circulating in the blood, and found in the

different tissues of the body and for which we have no chemical antidote—our duty becomes very plain and the therapeutics of this disease very much simplified. What would we do in other cases of poisoning with something for which we had no direct antidote? Would we not attempt to eliminate it from the system? The rational procedure, then, is the elimination of this poison from the system, and its egress can only be accomplished by stimulating to the fullest functional capacity the liver, bowels, kidneys, and skin—the natural eliminants. That nature when left alone attempts to throw off the poison by these organs is clearly shown by the fact that their secretions contain the lethal products and will convey the disease. Futerer found that bacteria injected into the portal vein appeared in the general circulation in one minute, and he also demonstrated that elimination of the germ from the system by the liver and kidneys was very promptly inaugurated. He suggests that this eliminative function of the liver explains why the typhoid germ is so often found in the gall-bladder and bile ducts, where it frequently sets up an inflammatory process.

Adami has also demonstrated that the liver cells normally possess a bactericidal function aside from that of elimination.

With these facts before us, I think we should apply those remedies which, from a knowledge of their physiological effect, will most actively and harmlessly assist nature in this eliminative process. While opinions may differ as to the efficacy of this or that drug, there can be no question as to the object to be accomplished. Those who practice and teach drug nihilism in reference to the treatment of typhoid fever should recognize the fact that there are sins of *omission* sometimes greater than those of *commission*, and that there are other pitfalls in the pathway of the physician than that of mischievous activity in the administration of

drugs. The innocuous desuetude into which some teachers and practitioners of medicine have lapsed in reference to the drug treatment of infectious diseases, and especially typhoid fever, and the common acceptance of the purely imaginary theory that because a disease is produced by a germ it must necessarily run a definite and specific course uninfluenced by any remedial measures, is to my mind the most rational explanation of why so many laymen are to-day seeking relief at the hands of the water-cure man, the Christian Scientist and osteopathist—glaring illustrations of which we have in our own city. The advice given by a prominent text-writer in this country that the physician in managing a case of typhoid fever should assume an attitude of "armed expectancy," it seems to me, if strictly adhered to, would be the indirect cause of more deaths from this disease than any advice which might be couched in any other two words in the English language. Analyze those words, what do they imply? They mean that the physician should nurse the patient and wait for complications, thus shattering to smithereens the good old doctrine that "an ounce of prevention is worth a pound of cure." Of what practical value is the most up-to-date and thoroughly equipped therapeutic armamentarium in the presence of perforation of the bowel or a severe hemorrhage in typhoid fever? Even though the physician expected it to occur, even though he be prepared with all known measures to meet the condition, of what practical value is it to the patient when he almost invariably passes to "that land from whose bourne no traveler returns," and leaves the physician in a state of melancholy reflection on the inadequacy of his "armed expectancy."

I think it wiser to use those measures which in a large number of instances will prevent the complication, than it is to await their development and then attempt to repair

their ravages. That complications can be prevented by the administration of the proper remedies, I have conclusively demonstrated by my own clinical results. In selecting those remedies which will most effectively promote elimination, we naturally place mercury at the head of the list as the great glandular stimulant. That it is justly entitled to the first place as a secretory and excretory stimulant, years of experience have conclusively proven. It is immaterial into what remote part of the system or what complex tissue the typhoid germ or its toxin may migrate, that it cannot evade the presence of this protean drug is shown by the fact that the secretions from the testicle of the male and the mammary gland of the female are no exceptions to the ubiquitous presence of this drug. Those who have never used mercury throughout the course of typhoid fever and have objected to it on the grounds that it was exhausting and tending to weaken the patient, entirely overlooked the fact that it is a tonic in small doses in health and disease. Cabot and others have demonstrated that it will increase the number of red blood-corpuscles and the hemoglobin, and augment the body weight in small doses. There is practically no drug of value which in the hands of the careless or ignorant would not do harm. Quinine is a specific in malarial fever. Mercury is a specific for syphilis. But who will deny that you can kill a malarial patient with quinine and syphilitic with mercury? But does this lessen their value when properly, carefully, and scientifically administered in these diseases?

It is to the proper administration of calomel in typhoid fever that I desire especially to call attention. If those gentlemen who are sceptical regarding the efficacy of this treatment will administer the drug in small and oft repeated doses, carefully watching for its constitutional effect, they will find that it will control the unpleasant symptoms and

fatal tendency of this disease. While it has this effect in small doses, yet to give it in five-to-seven-grain doses three times a day would be as irrational and as open to criticism as to start a syphilitic on the same large dose. I have conclusively proven that a typhoid patient can take more mercury without purgation or salivation than the same individual can take when not suffering from the disease. I think we may attribute some of the good effect of mercury in typhoid to the stimulation of the production of white blood-cells which are the great protectors of the system in all infectious processes. While I cannot state this positively, because I have not counted the cells while a typhoid patient was taking mercury, yet I think we are justified in assuming this on theoretical grounds.

I have up to the present time treated twenty cases of typhoid by this method without any deaths. Other men have treated a larger number of cases without any deaths, and the collected results give a mortality of less than 2%. The erroneous position of those who oppose this treatment, and at the same time admit that they have never used it, is too conspicuous to require more than passing notice. If our friends will resort to the same unprejudiced investigation and seek that same high class of indubitable evidence, *clinical results*, which has characterized our investigation of the subject, they will then be competent witnesses, and we will welcome with enthusiasm a report of their results. When an individual or scientific body of investigators desires to dertermine the efficacy of any new therapeutic measure, do they seek the opinion of physicians who, from want of experience with that measure, are unfamiliar with its results? Or do they rather inquire of those men who, having had clinical experience with the use of the measure under consideration, are qualified to give testimony? If a physician treat a given number of cases of appendicitis

medicinally and get a mortality of but 10%, by what rule of logic would he be justly entitled to condemn the measures of a surgeon who operated on an equal number of cases and got a mortality of 2%?

The physician who has never witnessed the contrast in the clinical picture of a typhoid patient on the eliminative treatment as compared to the expectant plan can no more appreciate its efficacy than a person born blind can appreciate the beauties of nature. If he has never witnessed the prompt disappearance of delirium, the restoration to consciousness to the clounded intellect, prompt return of the appetite and digestive capacity, and gradual but sure reduction of temperature, he has in store for himself one of the triumphs of his profession, and a scene which will give him renewed confidence in the healing art. It is the truth we are seeking in this matter regardless of the source from which it sprang, and if our opponents will show by clinical experience with this treatment that the mortality is as great or greater than any other method now known, we will then, *but not till then*, cheerfully acknowledge our error.

TYPHOID FEVER WITH REPORT OF CASES.

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I availed myself of the opportunity at the last meeting of the Georgia Medical Association to make a few remarks concerning the eliminative and antiseptic or Woodbridge treatment of typhoid fever. Since that meeting I have had some experience along this line, which, added to my previous experience with this method of treating typhoid, has given me great confidence in it.

I am aware that the treatment of typhoid fever is an old subject, and the discussion may bore some of my hearers. But I would ask: While it is old, is there any subject in medicine equally as ancient concerning which there is so much difference of opinion? Or is there any disease known to medicine of equal importance to the general practitioner? One that has come in mortal combat with as nearly all of the pharmacopeia? It has met on the arena almost every remedy from cold water to coal-tar, from gelsemium to guaiacol, and from calomel to constipation, "and has never yet lowered its arm."

It is said by many to be a self-limited disease, but unfortunately in many instances it holds a better limit than the patient.

It is not an uncommon occurrence for certain physicians in every community to get a reputation for being "good fever doctors," and all of these "good fever doctors" perhaps have certain pet methods of treating typhoid which they consider just a little better than any other method, and

yet every one of them may go at it differently. Now this argues one of two things, it either shows that almost anything will do to use in treating typhoid, or so far, no method has been discovered which proves anything like universally satisfactory.

As for my part, I believe that the use of eliminatives and antiseptics combined has marked an era in the treatment of typhoid. Subsequent experience may give me reason to change my mind. If so, I am not so thoroughly biased that I cannot do so. I have no motive whatever in championing the cause of Dr. Woodbridge. He is no more to me than any other man; but I thank him for his suggestions, and I believe him to be a benefactor to the race. I believe this method of treating typhoid is the safest, surest, shortest, the most agreeable, rational, and universally practicable method now extant.

The Brand treatment, which no doubt answers well in some cases and in some places, is totally impracticable and unsuited for general use. How could the country practitioner carry it out with half a dozen cases on his hands at the same time, several miles apart, and all of them to be furnished with a suitable bathtub, for taking plunge baths every three hours. In a city or village outside of a regular hospital the same objection occurs, though perhaps not in such a marked degree. To the majority of physicians the Brand treatment is out of the question, for it would be about as reasonable for them to order their patients to take a yacht ride three times a day as a plunge bath every three hours according to the direction of Brand. I for one do not believe that the human family is greatly the loser on this account.

The modifications of the Brand treatment, such as cold sponging or stripping the patient and using cold water or ice with massage are very troublesome and clumsy pro-

cedures if properly and faithfully administered. In nine times out of ten the modifications of the Brand treatment are not carried out thoroughly or systematically enough to be of great benefit in shortening the course of the disease. They sometimes render the patient more comfortable.

The general use of the coal-tar preparations is dangerous. The use of mineral acids, nitrate of silver, turpentine, iodine, etc., I believe is some better than doing nothing at all.

The expectant plan, the do-nothing, the do-everything and the constipation methods are about on a parity. The physicians who adopt these methods are the doctors who usually get the reputation of being "good fever doctors." *They are good nurses.* They see their patients often and long, and manage to keep them sick from six to eight weeks, but finally pull them through by the "skin of their teeth." They get for their scientific treatment a fat fee and the thanks of their patients for their careful attention and nursing.

I do not think that I am hasty in forming opinions or that I become over zealous in advocating anything until I have pretty fair reasons for doing so. What I say now in reference to the Woodbridge treatment of typhoid I leave open to modification when experience teaches me differently. I am not so captivated that I will not listen to reasonable arguments against it, but I have little patience with the doctors who oppose it on the ground that because the patients get well in from ten to fourteen days they doubt the diagnosis. Delafield, Pepper, and many distinguished authors speak of the abortive form of typhoid which naturally gets well in ten to fourteen days. Delafield also says that there is usually a remission of temperature at the end of the second week in typhoid with an apparent tendency to convalescence. Why not with proper treatment make all

the cases the abortive type? I am almost persuaded to say that if the treatment is begun early enough and properly administered it can be done.

Much has been said about mistakes in diagnosis in these quickly cured cases. Dr. Osler, who has very little faith in the Woodbridge treatment, says that the physicians should suspect typhoid fever in every case of continued fever of six or seven days' duration, especially if it resisted quinine, and he lays stress on the fact that the physicians very often call a typhoid fever malaria rather than the reverse. My experience bears out this observation. I mention this to show that the physician who has many cases of fever of from six to fourteen days' standing must surely have some typhoid among them. Simply because his fever cases never run longer is no proof that he has no typhoid.

I began the use of Woodbridge treatment exclusively in all cases that I diagnosed to be typhoid fever five years ago the first of this month, and only in two cases have I seen an elevation of temperature after the fourteenth day. One of these was a boy of twelve who had a febrile movement for twenty-five days, but for more than a week after the diagnosis was made he was not put upon the Woodbridge tablets because he persistently vomited them. This is the only case I have met with which could not take them well, or offered any serious objection to taking them. The other case where there was an elevation of temperature after the fourteenth day will be mentioned later.

I want to give you a short record of sixteen cases treated since last meeting of the Association. Out of these sixteen cases I had two deaths, but after having a record of these two cases I am inclined to think you will not care to count them against the record of the Woodbridge treatment.

I will group my cases somewhat geographically, as this will furnish some strong circumstantial evidence in confirming the diagnosis. In none of these cases did I stain for the bacillus of Eberth, but all of the symptoms and surrounding circumstances make the diagnosis of all but one or two of the cases conclusive.

The first four cases, all white females, lived at a place, and adjoining a place, where, two years previous, were some severe and protracted cases of typhoid.

Case 1.—Mrs. W., aged thirty, was sick four days before calling me, had taken calomel and quinine but generally grew worse; diagnosis at first call. Developed to be as well marked a case of typhoid as I ever attended. Dry tongue, tympanitic bowel, nose bleed, temperature 103 morning, 105 afternoon. She was an exceedingly sick woman for the time. Temperature normal on the fourteenth day of treatment, and with exception of almost a general neuritis which developed during the second week of her illness, she made a good recovery.

Case 2.—Mattie W., aged ten, daughter of Mrs. W., developed typical typhoid. Temperature normal on the tenth day of treatment.

Case 3.—Mrs. D., aged forty-five, neighbor to Mrs. W. Sat up with and helped nurse her during her illness. Developed typical typhoid. Temperature normal on the thirteenth day of treatment.

Case 4.—Miss D., aged fifteen, only child of Mrs. D.—was a constant attendant upon her mother. Developed typhoid soon after her mother's recovery. Temperature normal on the eleventh day of treatment.

Case 5.—Mrs. W., again, aged nineteen, newly married, visited her parents who lived near mill-pond and creek. Found two brothers at home with chills and fever. Remained a week. Returned home feeling badly and gradu-

ally grew worse for eight or ten days before calling me in. She kept up most of the time making little complaint, as her husband was night policeman and slept during the days. When I called found temperature 105; no special tympanitis; complained of aching all over, was in a perspiration; tongue red with some coating. Got her history and from general appearance concluded that she had malarial remittent fever. Gave her calomel and quinine. Next day no improvement; increased quinine; began arsenic and muriatic acid and phenacetin when needed to reduce temperature. The following day I found no decided improvement and began to suspect typhoid, though there was no tympanites and but little tenderness in the bowel. Her bowels were inclined to constipation when left alone. I left off quinine and muriatic acid and began at once with the No. 2 Woodbridge tablets every half hour. These were continued about thirty-six hours in all, though not so frequently all of this time, when she had a violent hemorrhage. Discontinued Woodbridge altogether, principally because disease was too far advanced for the treatment to be of much benefit. Directed my attention principally to the treatment of the hemorrhage, but in spite of all medication the hemorrhage was repeated every afternoon for four days, when she died.

Some may claim that the Woodbridge tablets caused the hemorrhage in this case, but I do not believe it. This patient insisted on getting up to the mug for her bowels to move or even to void her urine from the beginning of her illness until the hemorrhage occurred. This may have helped to bring it about.

The only other case of serious hemorrhage I ever had was in a woman of constipated bowels, whom I was treating for supposed malaria, because her symptoms and surroundings were malarial, and her husband was just recover-

ing from regular chills and fever. I put her on the Woodbridge treatment and her temperature was normal in two weeks.

Case 6.—In about three weeks after this patient died, and after a heavy rain, Hal. C., also male, aged sixteen, who lived just about one hundred and fifty yards from where patient died, developed a well-marked case of typhoid. Almost every symptom, even to rash, was present. He had frequent nose bleeds. Temperature reached normal on the twelfth day of treatment.

Case 7.—Just across the street, and a narrow street at that, a child near three years old developed typhoid. In all my experience I have never met with such a child. To give it medicine was to drench it like a horse. No coaxing, persuasion, or force could ever conquer it. We succeeded in getting a dose or two of calomel, one or two Woodbridge tablets and a little elixir of lactopeptine down it. Every attempt to give it medicine was such an unpleasant procedure that the parents suggested to discontinue attempts, and I readily assented. This child went on with well-marked typhoid symptoms and fever for about four weeks.

Case 8.—Soon after this child recovered Mrs. W., its mother, aged twenty-eight, developed well-marked typhoid. Temperature normal on the twelfth day of treatment.

Case 9.—Adjoining lot of Mrs. W., a child, aged four years, developed typhoid. The symptoms were well marked. Temperature normal on the ninth day of treatment.

Cases numbers 10, 11, 12, were all colored. Lived on adjacent lots and in a locality where typhoid was frequently found. Their temperature reached normal on the 10th, 9th and 13th days respectively.

The four remaining cases were isolated.

Case 13.—A little girl, aged eight years, lived at a place where it is said no family had ever lived without some member of it being stricken with typhoid fever. Her case was well marked and during the second week she developed the most extensive and pronounced typhoid rash I have ever seen. It was not scarlet fever, but the rose-colored rash spoken of by the text-books often but so seldom seen in practice. She was a very sick child when I first saw her and had been for two or three days before and so remained for a week, but the temperature touched normal on the thirteenth day of the treatment.

Case 14.—Mrs. W., aged forty-two. This is the only case reported where I at all doubted the diagnosis. She began feeling badly, had elevation of temperature daily, was nauseated and jaundiced. Bowels were tender on pressure and slightly tympanitic. Temperature reached normal on the eighth day of treatment.

Case 15.—Maurice W., aged twenty-two. Diagnosis not plain at first, so began the use of both quinine and Woodbridge tablets. After a few days discontinued quinine. Temperature normal on the twelfth day of treatment. Went to see him on the fifteenth day to dismiss him and found him at the point of death. He sat on the edge of the bed to have his shirt changed and feeling strong had gotten over the mug unaided. Getting up he felt exhausted and fell back on the bed. When I reached him he was near death's door from heart-failure. For fourteen hours I remained with him, and can truthfully say that I have never seen any one case as near crossing the river of Jordan without doing so as did this young man. Twice I counted him as good as dead, but he finally rallied. I found he had some albuminuria and he was anemic. He never had any more elevation of temperature and except

for a thrombosis of the femoral vein he would have made a nice recovery.

Case 16.—Miss W., aged twenty-six. This was a patient who, when I first saw her, needed the service of a minister rather than that of a physician. She had been nursing a sister and brother-in-law who were in bed nine weeks from typhoid fever. Had felt badly for a week, but kept up. Rode home, seventeen miles through the country, facing a cold east wind and drizzle. During the ride and remainder of day and night bowels moved nineteen times. When I saw her she was very weak. Pulse dicrotic; temperature 104 3-4. Began the use of Woodbridge tablets, No. 2, every hour, with a beneficial effect as regards diarrhea. The antiseptic and cholagogue effect of the tablets checked diarrhea rather than increased it. She had only four movements in the next twenty-four hours, but pulse became very weak. The third day she became comatose and took medicine badly. No Woodbridge used after second day. Taking some stimulant, but little nourishment. She lingered until the fifth day after I saw her, when she died.

In making up statistics I know it is very hard to do it fairly, especially if one wishes to draw conclusions to suit one's self. If one wishes certain statistics to appear good it is very easy to find some excuse for leaving out the bad cases. If one wishes certain statistics to appear to disadvantage it is easy to count all the mild cases as errors in diagnosis. But according to the facts in the two cases here reported which died, I do not believe it justice to put them in as treated by the Woodbridge method. In fact, on account of a very unfortunate combination of circumstances, as unfortunate as ever occurred in my medical experience, they were not treated by any method at all to speak of. Had these two patients been seen a week earlier and

the diagnosis made, who knows but what they might have recovered?

Of the thirteen cases which recovered and which received the Woodbridge treatment throughout, I find that the average time in which there was an elevation of temperature is eleven and a quarter days. The child which recovered without being treated had an elevation of temperature for twenty-five days.

It must not be imagined by my hearers that these are a collection of mild cases selected for a purpose. They are the cases as they came in a year's practice. The most of them were well marked and there was nothing in their symptoms to indicate that they might not be ill for six weeks instead of two. Cases numbers one, three, four, six and twelve and thirteen were exceedingly typical cases, with high temperatures during the first week of their illness. They were as sick as any cases of typhoid I have ever seen for the first seven or eight days. Their symptoms were so aggravated indeed that I felt these cases would put the treatment to a supreme test. I looked on with fear and trembling, and found little grounds for encouragement in these special cases until the beginning of the second week. When the improvement began it was remarkable and rapid.

Now as to treatment, I have never carried out Dr. Woodbridge's directions fully in any case; I seldom now use the No. 1 tablets. Upon seeing the patient and making the diagnosis or even suspecting typhoid I give a dose of calomel, or not, just as my judgment may direct. Then I begin with the No. 2 tablets, giving them about every half hour for the first twenty-four hours, having them swallowed with plenty of water. After twenty-four hours, if the patient has had free evacuations, I do not give them so often, but continue them throughout the course of the

disease, every one, two and three hours, as needed to give the patient from two to four movements from the bowels every twenty-four hours. I seldom use the No. 3 capsules until the temperature begins to run low, and even then never cease giving the No. 2 tablets altogether until the temperature is normal and has remained so for a few days.

In addition to the above I give the following prescription in almost every case, viz.:

Tinct. nux vomica	℥ ii
Listerine	℥ iv
Elix-Lactopeptine	℥ ii
Water, q s	℥ iv

M. Sig.—Teaspoonful every four hours.

I do not claim much for the prescription except as a stomachic tonic, and it has, I think, a good mental effect upon the patient. It makes him think you are sufficiently interested in his case to give him more than a little yellow tablet every hour or so. Every night I have the patient sponged off with lukewarm water and gently rubbed.

For the temperature I use but little. During the first week I use small doses of phenacetin and occasional cold sponging. In the second week I use nothing, for during the past five years I have seldom found it necessary. I allow the patient to take cracked ice when desired, especially if the illness occurs in the summer months.

The diet I confine principally to cool or iced milk.

During five years' experience with the treatment outlined above I have not lost a case of typhoid except the two mentioned above; and in no case where the treatment was carried out have I seen an elevation of temperature of more than one-half or one degree after the fourteenth day of the treatment. I do not claim that this method will absolutely cure every case of typhoid fever in fourteen days, or even at all. We do not always know the condition

of the gut when the treatment is begun, but begun in time the failures are to be a subsequent experience with me.

I had the pleasure of having Dr. M. F. Carson, of Griffin, to see four or five of the above reported cases, and he agreed with me in the diagnosis.

DISCUSSION ON PAPERS OF DRS. HUBBARD AND HARDMAN.

Dr. R. M. Harbin, of Rome: The question of typhoid fever is one that has caused more discussion than any other disease and there is great diversity of opinion as to its treatment. In the treatment there are only three features that the profession agrees upon: First, the good effects of the cold bath and its modification; second, the importance of a restricted liquid diet, and, third, the importance of absolute rest.

Most of the dangers have their origin in disturbances in the intestinal tract and that renders the diet question all important. Since in many instances we can not give the cold bath we can use modifications of same in the way of sponging and the ice-bag.

I have a record of forty-eight cases during the last three years in my town with a mortality of two. In these cases all but three had been drinking well-water, which makes me suspicious of well-water in towns. No routine treatment was given except the oil of turpentine with the bicarbonate of soda and carefully measured liquid diet.

As to the intestinal antiseptic treatment, nothing can be hoped for in drugs and I have no confidence in the Woodbridge treatment. In the so-called eliminative treatment the provoking of excessive peristalsis overcomes the good it may do and may cause hemorrhage and perforation.

Dr. J. W. Duncan, of Knoxville, Tenn.: I had the pleasure of hearing a paper read before the Tennessee State

Medical Society in which the writer claimed that he had treated over a hundred cases of typhoid fever very much on the same plan as that advocated by Dr. Hubbard. He gave a history of his cases, detailed his method of treatment, and mentioned the results. In discussing the paper a number of the members doubted his diagnosis, some claiming that they had not seen typical cases of typhoid fever for many years. Others in the discussion maintained that the cases were typhoid. As the outcome of the discussion and the diversity of opinion, a committee of five was appointed to investigate the subject bacteriologically and otherwise and report a year hence whether there be any typhoid fever in Tennessee or not.

I consider the paper of Dr. Hubbard an excellent one. I have tried the same line of treatment that he has outlined, and I can concur with him in the results and as regards his views.

With reference to coal-tar derivatives, I am satisfied that many cases of typhoid fever have died as the result of their use. If we use coal-tar derivatives for the purpose of lowering the temperature in typhoid fever, we will have a zigzag fever, and if the patient should recover at all, he will do so very poorly and will have a tedious convalescence. The red corpuscles of the blood will be so deteriorated from the effects of the coal-tar derivatives that the patients will recover very slowly.

I remember one physician, in discussing this subject before the society mentioned, said that seven members of his own family were down with this fever (typhoid so-called). He put them to bed and did absolutely nothing. He fed them, nursed them, but did not give them any medicine, and I consider that man as well posted as any member in that association, and yet all of them recovered from the disease at the end of eight weeks. I believe they would all

have recovered in three weeks under the treatment outlined by Dr. Hubbard.

Dr. T. E. Oertel, of Augusta: One of the speakers referred to the liability of contracting typhoid fever from drinking well water. In this connection it might be interesting to the association for me to cite a case that came under my personal observation during an epidemic at Plainfield, New Jersey. You will doubtless remember that they had a severe epidemic during which fifty or sixty patients died. The disease was of a malignant type. Upon investigating the cause of the disease, it was found that a certain milkman supplied with milk all of those families affected. Continuing the investigation, it was found that there was a case of undoubted typhoid fever in his family. He lived in the suburbs where he had extensive dairy farms. There was the ordinary country privy into which the dejecta was thrown, and not far from this was a well. A bacteriological examination made by a competent man revealed the fact of the presence of typhoid bacilli in this well water, and also a quantity of them in the milk which he was distributing to his patrons. He washed his cans at the pump in this well, and, as milkmen sometimes do, put a little water in to make it taste good, and in this way contaminated the fresh warm milk which he put into the can, it affording an excellent culture medium for the growth and development of organisms and thus spreading the destruction in every direction.

This simply illustrates the fact that we cannot be too careful in investigating wells where there is an epidemic of typhoid fever, and of seeing to it that there is no surface drainage which may possibly contaminate the water.

In the papers that have been read to-day on typhoid fever I have been struck with the absence of one thing, and this is a weak point in both of them. I refer to the Widal re-

action in cases of this disease. It would seem that any gentleman in preparing a paper upon this subject or in studying typhoid fever with a view to its scientific elucidation should take every means at his disposal to prove, first of all, that he has a case of typhoid fever. The clinical symptoms of the disease are sometimes complex; we have a variety of cases from the ambulatory type up, and we sometimes do not know whether we have a case of typhoid fever or not. In the Widal reaction we have at our command a means of diagnosis which, if properly carried out, will enable us to make an accurate diagnosis in fully 95 per cent. of the cases. We can make a positive diagnosis of this disease where we get agglutination and clumping of the organisms in the Widal test.

Dr. Wm. F. Holt, of Macon: I have been very much interested in the papers on typhoid fever, and congratulate the gentlemen upon the success of their treatment. It seems to me, Mr. President, after listening to these reports that the millennium has been about reached. If Dr. Hardman has been so successful in the treatment of his cases of typhoid fever by the Woodbridge treatment, then there is nothing left for him to do—there is nothing more to be desired. I would like for the doctor before the next meeting to look into the method of preventing this disease. We all know that as a general rule typhoid fever enters the system through the intestinal canal. It would have been good policy for the doctor to have inquired into the cause of fever in the cases which came under his personal observation, and if the cause had been detected the disease could easily have been prevented. In the section where I practice (Macon) typhoid fever has greatly diminished since the private wells have been abolished and the hydrant water used. In one of the institutions of which I am the attending physisician, after the first case of typhoid fever occurred, I is-

sued orders that every drop of the drinking water (hydrant) should be boiled, and we had no more cases of the disease.

While I claim to be a professional practitioner I do not run after strange gods. I am convinced that typhoid fever cannot be aborted by the Woodbridge or any other treatment. My treatment of typhoid fever, as the doctor has said, is upon the expectant plan to a great extent. I am very partial to the use of tr. nux vomica and the mineral acids. I give the nux from the very beginning of the disease, usually combining it with diluted sulphuric acid if the bowels are lax; with the dilute muriatic acid if the stomach is deranged, and if neither of these conditions exist my preference is for the dilute phosphoric acid, giving it regularly every three hours—5 drops of the nux with 15 drops of the acid, and my experience is that you rarely have the dry, parched, brown tongue or the tympanitic abdomen. As a diet I give equal parts of milk and lime-water. I have almost abandoned the Brand bath treatment from the great difficulty in having them properly given in private practice, and rely upon cold sponging, giving minute and specific instructions as to how it should be done. I rarely use the coal-tar products. My success has not been phenomenal, but fairly good. I prefer the nux to the strychnia, as it is a much better stomachic tonic. We rarely have hemorrhage of the bowels. I regret that the doctor did not give us his treatment of hemorrhage of the bowels, and I hope some gentleman will discuss this phase of the subject.

Dr. P. R. Cortelyou, of Marietta: I have been interested in the paper of Dr. Hubbard, and from my limited experience I must confess that I do not think we can abort typhoid fever. It has a limited course to run, and it will run that course. All we can do by judicious treatment is to guide it and keep it within limits. I have used the

antiseptic and eliminative treatment to some extent, but not exactly in accordance with the Woodbridge plan, using guaiacol, which I think has a beneficial influence in that it relieves tympanites. I have also generally used nux vomica, which I have found very beneficial to the stomach. I do not think the bowels should be moved too freely. At the outset, if necessary, I give a good purgative, such as calomel, if indicated. From that time on I usually restrict the movement of the bowels and endeavor to keep them as quiet as possible. By the judicious use of liquid nourishment and sponging of the patient several times a day, as the case may demand, I have found that the results in my own experience have been good. I am satisfied that many of the cases that are considered typhoid fever are really not genuine typhoid. I have seen cases myself where the temperature was considerably elevated for eight or ten days and fluctuating, the morning temperature being from one-half to one degree below the evening temperature, and this was the only symptom that pointed to the existence of typhoid, yet in the course of ten days the fever subsided.

I have not considered these cases typical typhoid.

Dr. T. R. Garlington, of Rome : The question of typhoid fever is extremely interesting, and my experience in treating the disease has been limited. We have a few cases every year where I live. My experience has been, that after a diagnosis of typhoid fever has been made, to treat the patient entirely upon the expectant plan. The diet in this disease is very important, and should be looked into carefully. We should lay down specific rules regarding what cases should receive a certain diet and nourishment, the time and quantity. This is extremely important, because where we have not a trained nurse the housewife or her friends are apt to make a mistake if we do not give explicit instructions as regards the time of feeding,

what the patient is to be fed on, and the amount that shall be given. I give very little medicine. I like the prescription of Dr. Holt, namely, nux vomica combined with one of the mineral acids, or some pepsin preparation. I think the less we disturb the stomach the better the patient will get along. The reaction will be less.

With regard to the bowels, I use normal salt solution by enema every day. In cases of diarrhea I order it twice a day, and once a day particularly when the bowels are constipated. In the majority of cases where there is a tendency to diarrhea, invariably the normal salt solution, used once or twice a day, using the bedpan, will enable us to control the bowels, and liability to hemorrhage is lessened.

As far as the Woodbridge treatment is concerned, I have had no experience with it.

Dr. J. S. Todd, of Atlanta: I did not have the pleasure of hearing the paper of Dr. Hubbard, but I suppose it was similar in many respects to the one he previously read before the Association, and which was published in the Transactions of last year, and you will excuse me for saying what a fellow once said to me when I read a paper. He said to me, "Dr. Todd, your paper was excellent, good English." I will say the same of Dr. Hubbard's paper. He is a splendid, enthusiastic young man, and I will do him the justice to say that I have no absolute right to differ with him because I have not tried his method or the Woodbridge plan. Therefore, in a measure, I am not a competent witness. But I will tell you right here, for the present time and for the future that I never intend to use the Woodbridge plan of treatment. Of course typhoid fever is caused by a specific germ, and it is nearly always produced by drinking impure water. In the cases I have seen and treated in the hospital of the Atlanta Medical College fifteen of them drank well water; one drank it and hydrant

water mixed. One case died so soon that we did not know what he drank. Milk is a frequent cause of contagion.

Now, gentlemen, I wish to enter an emphatic protest against the idea of disinfecting the alimentary canal. It is impossible to disinfect a tortuous tube of thirty to thirty-five feet long, with its sinuosities, duplications and reduplications. You cannot do it. In case of dysentery, where the specific cause is confined to a small place in the rectum, if you can get at the amebæ by using one part to one thousand of quinine you can kill the germ. But if the disease is not circumscribed, even if you inject thirty grains you would not be able to kill the amebæ, because they are not stationary. You cannot succeed by injecting any of the antiseptics. You cannot reach the interstices without absolutely destroying the integrity of the part.

I am a little surprised that no mention has been made of one of the very best antiseptics. Because it is old it is not valued as highly as it should be. It is not valued as highly as it should be because it is so common, so cheap, and that antiseptic grows in south Georgia. I refer to turpentine. I tell you that the greatest advance that has been made in the treatment of typhoid fever was when Dr. Nathan Smith, of Baltimore, said that the rational treatment of this disease consisted in having for the patient an ounce of laudanum, a bottle of turpentine, and a hogshead of buttermilk. (Applause.) I do not think the disease can be very well aborted. When I was a medical student I was taught to keep the bowels of the patient open for fourteen days, and they all got well. We are now taught that this is wrong.

Dr. James B. Baird, of Atlanta: It falls to my lot to treat more cases of typhoid fever every year than my friend Dr. Holt credits to the whole city of Macon in five years. I wish I knew something about the causes of typhoid fever and an effective means of dealing with the symptoms that we group under that term. For my part, I have never yet

seen a case of typhoid fever that I could with confidence ascribe to a particular cause. I have not been able satisfactorily to myself to explain the origin of a single one of the many cases I have treated in the last twenty-five years or more.

Referring to the abortive treatment of the disease, I have no confidence in it. If the disease is apparently aborted, I think this circumstance affords just ground to suspect the correctness of the diagnosis. That is the way I am impressed with that particular feature of the discussion. I did not hear the papers, consequently I am not able to discuss them intelligently. If I undertook to discuss the subject of typhoid fever, instead of five minutes, I should require not less than five hours. In my experience the proper treatment consists in sustaining the patient. It is largely a question of the survival of the fittest. If you can keep a patient alive he will not die. (Laughter.) That tells the whole story. So far as influencing the duration of the disease is concerned, I do not believe we can directly accomplish anything, except as we may be able to modify the manifestations of the affection and establish a tolerance of the disease, and by supporting measures which include rest, prompt feeding, tonics and judicious stimulation, and combating the threatening symptoms as they arise or in anticipating the most likely contingencies, assist the patient to weather the storm. That is all we can do.

I have cases of intestinal hemorrhage every year among hospital patients, probably because they come into the hospital late and the early management has been injudicious. However, some of these cases recover. I understood one of the speakers to say that he never saw a case of hemorrhage survive; I have seem many of them get well, and my chief reliance in this dangerous accident is opium.

Dr. O. B. Bush, Colquitt: So far as my experience is concerned, I have never used the Woodbridge treatment.

The main thing in typhoid fever is cleanliness, and, as my old friend and teacher, Dr. Todd, just said, the use of turpentine in the shape of an egg emulsion, cannot be beaten, and the use of pepsin combined with bismuth seems to having a peculiarly cooling effect that nothing else has. If we use pepsin with bismuth we rarely ever have hemorrhage. In the event of hemorrhage, we should combine opium with a little gallic or tannic acid, and this will have a very happy effect. Oftentimes we are not troubled with hemorrhage after this preparation has had time to take effect. I use no febrifuges at all except ice, sponge baths once a day and I always have the clothing changed at the same time, as well as the bedding. The nourishments should consist of liquids entirely. I prefer buttermilk. If constipation occurs, I would use enemas of merely warm water and soap.

Dr. Harbin spoke of well water having been drunk by the majority of his cases. In Southwest Georgia we have nothing else to drink but well water, therefore it would be impossible for us to drink anything else. But during the treatment of typhoid fever patients I have the water boiled, give it time to cool or add ice to do so, then let the patients have it. I support the patients with brandy in the shape of milk punch or egg flips, when the fever goes down low enough to admit stimulants being given.

Dr. A. C. Davidson, of Sharon; It is an old but trite saying that the proof of the pudding is in the eating. I am not willing to say that the men who have read these valuable papers were not able to make a diagnosis of their cases, for I believe they are fully competent to say what a given case is. I belong to the older school of physicians; I have been practicing medicine a long time, and there is another very trite saying that you cannot learn an old dog a new trick. I find that the older men do not take hold of new theories very readily. You will remember how long it

took some members of the profession to take hold of the antiseptic and aseptic plan of treating wounds, but they gradually adopted it, and now every practitioner, young and old, treats wounds after the aseptic plan. I do not know that we can render the intestinal tract aseptic. I have never tried to do so. I have treated my share of cases of typhoid fever during the last thirty-five or thirty-six years, but I have never undertaken to cure a case of the disease. If typhoid fever is a specific disease, like measles, smallpox, or scarlet fever, you cannot cure it. It will run its course just as a case of measles does. Scarlet fever will run its course, and any other specific disease will do likewise. I believe the best plan, after we have made a diagnosis, is to watch the case and treat the symptoms or complications as they arise.

In the discussion of this subject last year I spoke of the use of chloride of sodium in the treatment of typhoid fever, and have used it as a routine measure for many years. I use common table salt to make the solution, six grains to the tablespoonful, and give it every two or three hours during the day, combined with chlorate of potassium, as may be indicated, or with a few drops of hydrochloric acid. I agree with my friend Dr. Todd that it is important to use plenty of buttermilk. I used turpentine some when I began to practice medicine, but I did not have success with it.

Dr. A. M. F. Hawkins, of Ball Ground : My treatment of typhoid fever has not changed a great deal from year to year. I have been practicing medicine for twenty-four years, during which time I have treated many cases of typhoid fever, using very little medicine. Many years ago I began to use the turpentine treatment and made up the turpentine emulsion myself. As soon as I make a diagnosis of typhoid fever, I continue the turpentine treatment until the patient is convalescent. I likewise use sulphuric acid unless it is contraindicated. I employ the turpentine

treatment alternately with sulphuric acid. If the bowels are too loose, I use laudanum. I want my patients to have their bowels loose every two or three days. I have likewise used salicylate of sodium. This has a tendency to reduce tympanites where there is considerable of it. I have treated a large number of cases of this disease and my success has been fairly good.

If hemorrhage of the bowels occurs it has been my custom to give green coffee tea. Having used it for fifteen years in a number of cases, I have met with good success in all cases where it was given.

I generally take about one ounce green coffee, bruise it, make a decoction of about two gills, giving doses of about one ounce every one and one-half hours.

If any member of the association has had occasion to use this I would be pleased to learn the results.

Dr. St. J. B. Graham, of Savannah: I have had no cases of typhoid fever since the advent of the Woodbridge method of treatment, so I cannot discuss this phase of the subject intelligently. I only wish to say a few words with reference to diagnosis. Dr. Oertel has spoken of the reacton and of the clumping of the bacilli, known as the Widal reaction. This gives results in 98 per cent. of the cases that have been observed in the North. The discovery was made by a German by the name of Widal. This man did his work in a climate free from malaria, while we are working in a climate where there is a good deal of malaria, especially on the seacoast. Last summer I obtained from the Johns Hopkins University, in order to be sure that I had typhoid bacilli, two samples of these bacilli. During the summer months I had sixty cases of malaria, demonstrated by the microscope as such, and during this time I obtained the Widal reaction in about 35 per cent. of the cases of malaria. There are two other cases I had which were interesting.

These were cases of hemoglobinemia, with continued fever. On the third they gave the diazo-reaction of Ehrlich, which is characteristic of typhoid fever. You can get this diazo-reaction in malarial diseases. You can get it in chronic malarial cachexia where the patient has little or no fever. You can get the diazo-reaction in tuberculosis and in pneumonia; therefore it is not of much value in the differentiation of typhoid from malarial fever. In the two cases of hemoglobinemia, which could not under any circumstances be called typhoid fever, you have hemoglobin in the urine, you have the characteristic symptoms, and death of the patient, and in the continuous form of the fever I have not seen a patient get well, yet you get the Widal reaction in the blood of the patients. I do not think in our Southern country the Widal reaction is as valuable as it is in the North; certainly not in the differential diagnosis between malarial and typhoid fever.

Dr. T. M. Greenwood, of Mineral Bluff: This is a subject of great interest to the general practitioner, and I wish to state a series of facts that may throw some light on the subject. Three years ago there was an epidemic of typhoid fever, so-called, in our district, and in the first year most of the patients died. The course of the disease varied from three to eight, and some twelve weeks. The cattle died about the same time with a peculiar disease. The second year the epidemic was worse, and last year it was still worse. Three of us worked hand in hand with different views as to the treatment. However, the general consensus of opinion was that we had to deal with typhoid fever. All of us kept records of our cases. One gentleman pursued the old orthodox line of treatment, namely, expectancy and turpentine, with stupes to the bowels. Another practitioner advocated the use of salicylate of soda, euthymol, and things of that kind, and a third pursued the eliminative

plan of treatment. I adopted the eliminative and antiseptic plan and treated forty-six cases. We had, I think, some three hundred cases. We changed or swapped sections and did everything possible to bring out all the facts that we could. While I have not had much experience with the Woodbridge treatment *per se*, and am inclined to doubt that guaiacol has a particularly valuable influence, I am convinced that the eliminative treatment has great virtue. I am satisfied that the salicylate of soda is of some value in the treatment of this disease, but the mortality was greater under the other methods of treatment than it was under the eliminative plan. We had only two cases of hemorrhage from the bowels. The eliminative plan was pursued in these up to a certain time, when a change was made. There was no hemorrhage in the forty-six cases that I saw.

As to diet, we had a great deal of trouble. The cattle were all sick, and patients were afraid to use milk. The line of diet was largely buttermilk. In any wasting disease we should give tonics, but this hardly applies to the subject under discussion. Pea soup was the best thing we could get hold of. We could not use milk very well in the treatment of our cases. The patients were all poor miners in camp. The pea soup was well salted and was borne by the patients very well. I expected to write up this matter in detail, but have not as yet done so.

With reference to hemorrhage, when it occurs, I have never forgotten a remark made by Dr. Griggs, and that is, to give a teaspoonful of turpentine. This readily controls it, and you will rarely have to repeat the dose.

Dr. C. C. Stockard, of Atlanta: This subject is interesting to me. I have noticed in reading discussions on the treatment of typhoid fever before societies in different parts of the country year after year, that nearly all of those who are opposed to the antiseptic and

eliminative treatment admit that they have either not tried it at all, and are simply averse to it, or else they tried it only half way. I have not read or heard of any man who has given it a fair and faithful trial who did not speak well of it. I was among the first to adopt this method in Atlanta, and Dr. Hubbard gave me credit in his paper last year for having suggested it to him, although my experience has not been very extensive as I have been drifting into a special line of work. During the past five years I have treated about thirty cases of the disease by the antiseptic and eliminative treatment, and my conclusions are about the same as those at which Dr. Hubbard has arrived. I believe by far the most important agent is calomel. It stops the irritation of the intestinal tract, whether by its local effect as an antiseptic or by its constitutional effect, I cannot say. Two patients that came under my observation last fall had contracted the disease about ten days before I saw them. They were typical cases of typhoid fever, both had a number of hemorrhages and both progressed toward recovery by the eliminative and antiseptic treatment.

I believe any man who will try the method properly in half a dozen cases will never use any other unless something far better than anything else now known is discovered.

Dr. G. P. Robinson, of Atlanta: I wish to say a word or two with reference to typhoid fever in children. The prognosis in children is generally good. Personally, I do not use the Woodbridge treatment. The only case of hemorrhage in a child I ever saw was one in which the Woodbridge treatment was pursued, but whether it had anything to do with the hemorrhage or not I cannot say. I do not believe that we can render the intestinal tract aseptic. I do not think that it is possible to do this where we use irri-

gation. It is certainly not so in cases of diarrhea. There is one point I want to emphasize, which I believe is exceedingly important in typhoid fever, and that is the use of normal salt solution, both in washing out the bowel, giving it also subcutaneously in large quantities, administering as much as a pint during the twenty-four hours.

Dr. W. J. Bryant, of Summerville: I desire to say that I have had a good deal of experience with the Woodbridge treatment, and I did not get any specially favorable results from this method, and some of the patients came near dying. I have treated forty-eight cases of typhoid fever on the expectant plan without a death. Of the next five cases I had, treated on the same plan, three of them died. The discussion of this subject seems to show a wide difference of opinion. I think most of us use both the antiseptic and the eliminative treatment in dealing with our cases. The Brand method is elimninative; the Woodbridge treatment is antiseptic and eliminative, and most of us follow the same plan. Turpentine has been used for a long time and is an old treatment. I do not think that we disagree very much in the main as to the treatment of typhoid fever, and I am sorry to see one line of treatment held up to the exclusion of others.

Dr. Hubbard (closing the discussion on his part): I have listened with a great deal of interest to the discussion, but the statistics regarding mortality have been very conspicuous by their absence. Some of the gentlemen who have talked on the subject are not familiar with the antiseptic and eliminative treatment of this disease, and they can only become familiar with it by trying it faithfully, and that is all I ask. Theories are beautiful things on paper, and we have got plenty of them in medicine, but give me the man who gets results.

As to the diagnosis, how many Widal reactions have been presented of cases treated by the Brand method. Let the followers of this method give us some. We have got as much right to deny their diagnosis as they have ours. We do not claim any corner on diagnostic ability, neither do we grant it to others. Give us your Widal reactions, and we will give you ours. Personally, I have had made tests in every case I have treated this year with the exception of two recent ones. The fever left the patients in ten days in some cases, and did not return. You can call it abortive if you please. It is not notoriety that I am seeking, but I am endeavoring to get at the truth of the matter. That is what every honest investigator should seek regardless of everything else. My friend Dr. Todd, a man whom I very much admire and respect, got up and made the unscientific remark that *he has not tried* the treatment and *does not intend to do so.* Let us take a discovery like the X-ray, which has been of enormous benefit to surgery, and where is the man who will say he does not believe in it; that he has not *tried it* and *will not try it?* Is that science? Is that progress? If we condemn all new things with the simple statement that we have *not tried it*, and we *will not try it*, how are we going to make any progress in the practice of medicine and surgery? We will be one thousand years from to-day where we are at present if that kind of teaching is to prevail.

As to the use of stimulants, I did not mention them in my paper because I did not have the time. Of course I give strychnia as a heart stimulant, and whiskey when necessary, but it is rarely needed with this treatment.

With reference to diet in typhoid fever, we should feed our patients more than we have done in the past in order to counteract the influence of the disease on the patient's vitality. I claim that with this treatment the patient can digest more food than by the expectant plan of treatment.

I would like to ask any gentleman who is opposed to the eliminative treatment whether he would treat an abscess by putting a bandage around it, tying it up, or whether he would resort to surgical measures and wash out the cavity. The intestinal canal is the great drainage-tube of the entire system, and by the antiseptic and eliminative treatment we get rid of the toxic products that accumulate during the course of this disease. Lastly, I desire to say that those who have tried this method of treatment are quickly converted, and I am sure that if Dr. Todd will honestly and faithfully pursue this method of treatment in typhoid he will continue it.

Dr. Hardman (closing the discussion): I desire to mention briefly one or two points in regard to prevention. I could not very well cover the entire ground in my paper. Dr. Holt says all I need now is a little more care along this line and the millennium will come. He seems to intimate that as several of my cases occurred in the same locality, that I paid little attention to prevention. These are not the facts in the case. The community was thickly settled, and I congratulate myself that it was my precaution that prevented many others in the same locality from contracting the disease.

Dr. Holt says that he considers nux vomica a valuable agent in the treatment of typhoid, but I consider elimination much better. I use nux vomica throughout the disease as a tonic and heart stimulant. Many say that the fever gets well too quickly to be genuine; that the disease will run its course and is self-limited. I would like to have some one tell me the limit of typhoid fever, whether it be two, three, five or six weeks. Simply because one case ends in recovery in two weeks, and another case in four weeks under different treatment, is no argument whatever that the case which recovered in two weeks was wrongly diagnosed. I

do not know that this disease has ever been limited except by the new treatment.

When I waited for results on the expectant plan of treatment, it was fully four or five weeks before the patients get well. But now I do not meet with cases which remain ill so long, and yet am I to conclude that I never now meet with typhoid fever? I strongly believe that I might have my cases to run the four or six weeks if they were not properly treated, and then I could report cases like some of my friends pine so much to see—cases which would come to spend the summer and finally get well, as I have before remarked, "by the skin of their teeth" and the skin of their purse.

A PLEA FOR EARLY OPERATIONS IN INGUINAL HERNIA.

W. F. WESTMORELAND, M.D., ATLANTA, GA.

In selecting my subject I was governed by the idea that it should be one in which the medical profession would feel a common interest.

The motif of this paper is a plea for the more radical treatment of this distressing condition, and to get the profession generally interested in educating this class of suffering humanity to the same view. For the laity, as a rule, believe that the operations for the radical cure of hernia are very dangerous, and at best only a temporizing expedient.

The frequency of hernia and the mortality arising from it, will prove a surprise to those who have not investigated this phase of the subject. Five per cent. of the total population, or four millions of people in the United States, suffer from this dangerous affection in a greater or less degree (1). One death in every six hundred from all causes, is due to hernia (2). In Great Britain hernia caused more deaths than occurred from all uterine diseases (3). Ninety-three per cent. of all inguinal hernias are oblique.

The relative frequency of inguinal hernia to all other varieties is marked. Among 100 men who are ruptured 97.5 per cent. are inguinal, and among 100 women who are ruptured 60.3 per cent. are inguinal (4).

Hernia is treated by mechanical and operative methods.

The mechanical method or use of the truss can be considered as curative and palliative.

The use of some form of truss is probably as old as the human needs. "Poucet described a recently discovered ancient Phenecian statuette of a god, at least 3,000 years old, which represents unmistakably several ruptures on the abdomen, with a double hernial bandage resembling those now in use."

From supplying the primitive requirements of this prehistoric era, the truss manufactory has become a giant industry. In 1894 one firm in Philadelphia manufactured and sold 450,000 trusses, and in the same year a Hernia Specialty Co. was incorporated in New York with half a million dollars capital (5).

The scope of this paper will not allow a discussion of the merits or demerits of the truss.

The truss as a curative agent is practically limited to children under five years of age. The most carefully collected statistics show the following results: under twelve months of age the cure by truss is 58 per cent.; from one year to five only ten per cent.; after that age practically nothing (6).

In acquired hernia the truss promptly applied will cure 5 per cent., at fifteen years, and 1 per cent. at thirty years of age.

The application of the truss in early childhood is practically safe, as strangulation is a rare accident.

Stern's analysis of the children's hospital in eight important European cities, shows that of 139,000 children treated there was not a single operation for strangulated hernia (7).

A few years ago the worsted or "hank-truss" became the popular truss for treating children. But where alternate cases have been treated with the worsted and the spring truss, the latter has proved superior (8).

The largest field of use for the truss is as a palliative measure.

A patient calls for a physician, or more frequently a druggist, or truss vender; a truss is applied, possibly in a scientific, but probably in an unscientific manner, and the patient is sent abroad with a false idea of security. The large majority of strangulations occur in patients who are wearing a truss to prevent this accident. In a large number of cases the truss actually predisposes toward strangulation.

By applying a truss, we are sending a patient to face a future full of inconvenience, irritation, discomfort, pain (often actual agony) and danger. Danger much greater than that from the operation for radical cure.

In my own practice I stopped applying trusses some years ago. When a patient consults me in regard to a hernia I tell him it is an operative case, and explain the dangers of his condition. If he prefers a truss, I decline to assume the responsibility of applying one, and let him go to some one else.

The greatest danger arising from hernia is strangulation. The usual method of handling this accident is its reduction by taxis or operation.

I sincerely believe that taxis is responsible for the majority of the deaths that follow strangulation. It causes death by injuries to the sac or its contents, but principally by the delay it causes, before operative measures are adopted. In the majority of cases probably both enter into the causation of the fatal issue. Nor should it be overlooked that the fluid of the hernial sac contains pyogenic organisms, much more frequently than previous publications would indicate, and that taxis will materially increase the danger of their infection.

The mortality following the successful reduction of strangulated hernia by taxis is 7.8 per cent (9).

My own opinion and practice is that taxis has no place in the surgery of strangulated hernia except as an adjuvant to an operation, or as an expedient for temporary relief until the patient can be prepared for an operation.

If taxis is decided upon, the patient is placed in a position that gravity will assist in the reduction. Then traction is made upon the tumor, while the canal is being manipulated. Traction lengthens out the mass that is blocking the canal, favoring the effects you produce by manipulation. Pushing upward on a strangulated hernia simply carries it over the edge of the ring into the abdominal wall. Even gentle manipulation should not be continued over five minutes. Taxis should be attempted only within the first four hours after strangulation; even this time limit may prove dangerously long in some cases, as even so serious a condition as gangrene of the sac has occurred within this length of time after strangulation (10).

If taxis has been unsuccessfully tried before I see the patient, it is not repeated, but an immediate operation advised. Changes may have occurred in the contents of the sac, the result of, or hastened by the mechanical violence of the previous taxis, that would make their return to the abdominal cavity extremely hazardous.

I have seen the surgeon's face light up with the halo of glory of hard work well done after a difficult reduction of a strangulated hernia and be correspondingly depressed by having to sign the death certificate next day.

I consider every case of strangulated hernia a surgical one, in which an immediate operation for its relief is indicated. There is no medical side to the treatment of strangulated hernia; medicine, by causing dangerous delay, eventually means death.

The surgical side of this question is none too bright. Bowlby (12) gives the mortality in the four largest hospitals

in London, as not less than forty per cent. and ascribes it not to the operation, but to the time allowed to elapse between strangulation and operation. In cases operated on within the first twelve hours the mortality is trifling. This trifling mortality from operations made within the first twelve hours rapidly grows to fifty and sixty per cent. by the fourth day.

A strangulated hernia is a surgical case; the treatment is an immediate operation.

The danger of mortality after strangulation increases with each tick of the clock.

Surgical lore describes more operations for hernia than there are days in a year—many of them as mysterious and intricate as a Japanese puzzle.

Until recently none of the operations stood the time test, and few surgeons would have suggested any of these operations to a patient whose hernia was controlled with passable comfort and safety by a truss. About ten years ago the surgical treatment of hernia was revolutionized by the introduction of Halstead's operation for the radical cure of hernia; this was soon followed by Bassini's operation. But to the American surgeon is due the priority and honor of introducing the new principle which has already accomplished so much in alleviating human suffering.

The principle of these operations is the making of a new canal and ring. For the detailed technique of these operations I refer you to any work on surgery. Both operations have been modified since their introduction.

Bassini's operation is the most successful, and has had the greatest vogue, especially in operations on children. This operation is practically the formation of a new canal. It has been modified by the substitution of kangaroo tendon for silk in the buried sutures, and a suture is introduced just above the cord, this with the suture introduced through the

same structures below the cord, prevents any separation of the tissues, above or below the new internal ring, and restricts the cord to a narrow limit.

Halstead's operation has been modified by eliminating the excision of the veins of the cord,—this was done to prevent resulting complications in the testicle. Orchitis occurred in one of my earlier operations; since then I have curtailed the scrotum in each case where there was a redundancy of tissue. This prevents any dragging of the testicle. No patient has ever had an uneasy sensation in his testicle since the plan was adopted. Nor do they have to wear a suspensory, which is otherwise necessary.

In suturing the canal, I would suggest beginning the sutures close down over the pubes, introducing them from within outwards; this facilitates your work, and you can easily include in the sutures what structures you wish. If left till the last these sutures are frequently placed with difficulty. The lowermost suture should embrace the conjoined tendon and include the transversalis fascia; also the edge of the rectus muscle when practicable.

Bassini's operation has had its greatest success in the young subject. But in the adult where the canal and rings have been widely stretched, I have an abiding faith in the longer retaining power of the silver wire (Halstead's operation), particularly as experiments have shown that it takes about three months for the firm union of this tissue.

Either the silver wire or kangaroo tendon should be of a selected size for each case, as you would select different sized ligatures for varying sized arteries. Many failures can be attributed to the disproportionate size of the suture material to the tissues upon which it is used. If the suture is too large, it interferes with nutrition and strangulates the tissues, cuts out and also predisposes toward infection.

The silver wire is an inhibitor of pyogenic organisms, and finally disappears.

The essentials for success in these operations is the careful coaptation of the greatest possible thickness of fascia, quietly maintained for a sufficient time for normal repair, without interference with nutrition, or the intervention of scar tissue or wound infection. In proportion to the formation of scar tissue there is an increasing tendency to relapse.

To insure complete rest of the wound, and to prevent any sudden tension on the sutures, I apply a plaster of paris splint from the umbilicus down around the pelvis and extending to the knee on the operative side. The minimum time limit to keep these patients in bed is three weeks.

Tension is occasionally necessary in bringing together some of the deep structures, particularly the pillars of the extending ring. This violates one of the most important principles of antiseptic surgery, and these cases should be especially guarded against infection.

These wounds should be absolutely dry before closure, and as there are no dead spaces, drainage is not necessary.

The present status of the operation is a mortality of less than one per cent. Doctors Bull and Coley have collected 8,000 operations made in the last decade with this light mortality. They consider pneumonia from the anesthetic the greatest danger. Ninety-five per cent. is a conservative estimate of cures following a properly performed operation. These estimates presuppose a judicious selection of cases (13).

Indiscriminate operating by inexperienced operators should not be done. Non-success or mortality in these cases, which are watched by kindred sufferers, will give operative measures a serious setback wherever they occur.

To obtain the best results requires a judicious selection of cases, preferably young subjects, for the likelihood of cure is proportionate to the youth of the patient. Surgical

skill in operative technique, and experience in aseptic detail is necessary upon the part of the operator to insure success. I doubt if the first few herniotomies are ever satisfactory to the surgeon himself.

Our statistics of cures will remain unsatisfactory so long as the laity consider the operation as a *dernier ressort.* We must educate them to the necessity of operating in early life, or as soon as the hernia is acquired.

In my practice indications for operation are, all otherwise healthy children over three years old, where the mechanical treatment has been faithfully tried for a year without success. All cases over this age, either congenital or acquired when the operation is not contraindicated by excessive stoutness, physical infirmities or old age; or the condition of the hernia itself.

Where the danger was due to age or physical infirmities plus anesthesia, many of these contraindications have been removed by the use of local anesthesia. This method has proved of inestimable value in strangulated hernia, preventing much of the shock and mortality that followed general anesthesia. I operated with local anesthesia upon a case of strangulated umbilical hernia, with a resection of six feet of gangrenous intestine and an end to end anastomosis, without any pain, except when the gut was pulled on.

For a most interesting review of this subject I refer you to an article with a report of forty-nine cases, by Doctor Cushing, in the Annals of Surgery, January, 1900.

In scanning this subject I have tried to develop the logical sequence, that the operative measures are safer than the mechanical treatment, that in the former there are over 95 per cent. of cures, and in the latter after early childhood practically none, and that the most conservative physician can conscientiously assure his patient of these facts.

Under the modern pressure toward a division of labor, and the tendency of all human efforts to focalize itself along

special lines, surgery has made wonderful progress, and in no way is this better illustrated than in the treatment of hernia.

Before closing this paper, I wish to place the credit of this where it is due.

The fact that Bassini's operation is the popular one has lead to the very general belief that the most valuable work in the literature and treatment of hernia was of European origin. The priority of each step that goes to make this operation is due to American surgeons.

The principle of the modern operation, that of making a new canal and ring, is due Dr. W. S. Halstead, of Baltimore. The use of the animal suture (carbolized catgut), and suturing the canal in herniotomies, was successfully introduced in 1871 by Dr. H. O. Marcy, of Boston. He also introduced the use of the kangaroo tendon for the same purpose.

The plastic operation, that of transplantation of the rectus muscle, in cases where the conjoined tendon is obliterated is due Dr. J. C. Bloodgood, of Baltimore.

Probably the greatest credit is due Drs. Wm. T. Bull and Wm. B. Coley for their modification of Bassini's operation, and particularly for popularizing this operation, and the best work and literature on this subject, a literature that I have drawn on freely in the preparation of this paper, will always be associated with their names.

Gynecology and abdominal surgery, these kindred children of modern surgery (medicine), which as they have grown, have acquired such power to remove and alleviate human suffering, had their birth in Southern genius.

The foundation of modern scientific gynecology was laid in Alabama; as the foundation of abdominal surgery was built in Kentucky, and as Marion Sims went abroad to teach the European surgeons that science of which he was the

father and the mastermind, so have his successors in this country sent to their homes with broadened views those distinguished European gynecologists who came to this country to teach them.

The priority, originality, and best work in gynecology and abdominal surgery is that of American surgeons, and please God, so it will remain.

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OSTEOMATA: THREE CASES WITH SPECIMENS.

These specimens are typical osteomata. They are bone growths from a matrix of osteoblasts either in the bone or by a displacement from it. The anatomical varieties are osteomata spongiosum, which resembles cancellated bone, and osteomata durum or eburneum or ivory, very hard, as the name implies.

Their origin is similar to chondromata, but undergo a higher degree of development.

I use the term osteomata as distinctive from exostosis, which should be limited to irregular bony outgrowths, the

result of a localized or diffuse hypertrophy usually following a suppurative process.

Specimens 1 and 2 are typical osteomata spongiosum. They resemble and their cancellous structure is continuous with that of the bone from which they spring. These grew from the epiphyseal line. Their embryonic articular surfaces are covered with thin cartilage; they were inclosed in synovial sacs, continuous with an opening into the adjacent articulations. The sacs contained synovial fluid.

Specimen 1 was situated just above the outer condyle of the left femur in a girl of eleven.

Specimen 2 was situated on the internal border of the left humerus, just below the lesser tuberosity, in a boy of sixteen.

Specimen 3 represents both types of osteomata. This specimen was removed from a negro man about twenty-six years old. The tumor extended upward from the antrum of Highmore to the upper portion of the right frontal sinus, which it completely filled; and by pressure atrophy had penetrated the outer tablet at the frontal eminence. The

right eye was very much displaced by the tumor, which passed to the inner side of the orbital plates. The bulging out of the eye was probably greater than an inch, and vision was almost lost.

That portion of the tumor in the frontal sinus was, as is usual, about the bones of the skull, of the ivory type. And, as is also usual in this type, appeared to spring from the

periosteal osteoblast. I could not find bony connection at any point. As it extended toward the antrum it became more cancellated, and finally so friable that it would crush in removing.

After removing, I fractured the orbital plates back into position with my fingers.

The patient recovered with a scarcely noticeable deformity and perfect vision.

SUPRAPUBIC CYSTOTOMY FOR STONE.

Case 1.—In October, 1888, J. S., a white boy fifteen years old, received a punctured wound of abdomen and bladder by a sliver of pine, thrown by a rip saw that he was operating. His physician telephoned me to come prepared to operate.

An examination revealed a ragged wound in the left inguinal region just above Poupart's ligament, and close to the inner side of the internal epigastric artery. There was a continued dribbling of urine from the wound.

A median laparotomy was made within three hours after the injury. There was a ragged rent in the peritoneum, but the bladder wound was found to be extraperitoneal and toward its base. There was a quantity of urine in the abdominal cavity. The rent in the peritoneum was repaired, the abdomen thoroughly flushed and closed.

The external wound was enlarged, and drained by two rubber drainage-tubes, one carried down to the bladder, the other about half way. The peritoneum was walled off by iodoform gauze. The bladder was kept empty with a rubber catheter until repair occurred. The patient made an uneventful recovery, though he suffered intensely from the necessary changing of the catheter.

The experts who examined the splinter and compared it with the original piece, assured me that it had come away

intact and that no fragments were left in the wound. However, the bladder was examined and a foreign body recognized.

The physical condition of the patient, however, made any prolonging of operative measures hazardous, and decided the plan followed, with the intention of dealing with the foreign body later.

At that time I was inexperienced in suprapubic operations, which were then surrounded with theoretical dangers. Now, I think it would be better surgery to go prepared and make a suprapubic cystotomy.

After his recovery the boy declined any operation. I was raised and trained under the good old school of perineal lithotomy. But in 1890 I thoroughly reviewed the literature and statistics of stone operations, and after carefully weighing the mortality, dangers and unpleasant sequelæ, and comfort of the patient, I decided upon suprapubic cystotomy as the operation of election. I have used the following technique in these operations.

1. Distention of the bladder is by hydrostatic pressure. The apparatus I prefer is a half gallon graduated glass reservoir, with about five feet of rubber tubing connecting it with the largest soft rubber catheter the urethra will admit. A fountain syringe will do, but the glass reservoir allows you to watch the fluctuations of the fluid and gauge the quantity in the bladder. Three feet of elevation gives a pressure of one pound to the square inch; with two feet elevation, which I usually find sufficient, there is no danger of rupturing even an ulcerated bladder. The advantages of the hydrostatic pressure are, it only admits a sufficient amount of fluid into the bladder to properly distend it, the pressure is continuous and can be instantly increased or decreased by elevating or lowering the reservoir. There is no extra tension on the bladder from straining and coughing, as the extra-abdominal pressure forces the fluid back into the reservoir.

For irrigation and distention I use a boro-glyceride solution, tablespoonful to the quart. If there is a tendency to force out the catheter I have an assistant hold it in. I prefer this to tying it in. The latter sometimes irritates the urethra.

I never use rectal distention, as it only elevates the posterior wall, and does not increase the suprapubic interval between the pubis and peritoneum.

After thoroughly washing out the bladder, I open the abdomen by a two to three-inch median incision, extending down to and slightly over the symphysis. If the linea alba and recti muscles are thick and rigid, they are relaxed by a slight transverse cut just above the symphysis. When the transversalis fascia is cut through, a mass of yellowish fat bulges into view. At this point the abdominal walls are pulled wide apart, the reservoir is elevated, and distention of the bladder is begun. The bladder, rising along the line of least resistance rises much higher than it would if flattened against the abdominal walls previous to their section.

While the bladder is being distended, I tease through the fat with a blunt director, missing the veins that this tissue is filled with.

The surface of the bladder is covered with a plexus of veins. In opening the bladder select a place that is free from them and high up. The bladder is opened by a quick plunging stroke with a sharp-pointed bistoury. If the knife is sharp and the stroke quick, the mucous coat will not be pushed from the other layers. All cutting of the bladder after this should be from within outward and downward for the same reason. This opening should be made large enough to admit the forefinger freely. As the gush of water follows the withdrawal of the knife, the muscular walls should be caught on either side of the incision by artery forceps, forcep-pressure will not injure the tissues. I cannot too strongly condemn the practice of holding the bladder with a tenaculum or sutures. Both puncture or weaken the bladder wall, and the latter always tears, this increases the danger of leakage if the bladder is closed. The bladder is now examined by the finger, and

the size of the stone and the condition of the bladder walls noted. The incision can now be enlarged to meet the needs of the case.

We close all bladders where their pathological conditions do not necessitate drainage. In closing the bladder I use the buried mattress suture of the smallest braided silk. The braided silk has not the cutting tendency of the other. A small round half curved needle with piercing but not a cutting point is the best. Beginning the stitches at the pubic end of the incision facilitates work. The sutures include the muscular layer to, but not through the mucous layer; place them close together. When the incision is closed the bladder is again distended; if no leakage occurs the abdomen is closed. As there is no dead space, even superficial drainage is unnecessary.

The bladder is now emptied and the catheter withdrawn. The bladder is catheterized three times at four- or five-hour intervals, then the patient is allowed to void his urine.

This description presupposes such preliminary preparation of the patient as is indicated by his local and physical condition.

These patients are well in a week, though we keep them in bed from ten days to two weeks.

CARCINOMA OF THE CECUM.

Mrs. M., white, age 37; five children. First noticed an enlargement in left iliac fossa in May, 1898. In June noticed another enlargement in left lumbar region. In July there began to be discharged more or less pus with each movement of the bowels. In October these tumors began to fluctuate both in size and position, the one in the left lumbar region sometimes disappearing entirely. This, however, was preceded by an unusually large discharge of pus from the rectum. There was constant diarrhea.

I saw the patient in consultation with Drs. McRae and Morrison. An examination revealed two indefinite masses as above mentioned, and the conclusion that they were abscesses connected with the bowel and probably each other. There was no positive diagnosis nor was there anything definite to base one on.

As the patient was emaciating and losing strength rapidly an immediate operation was decided upon.

Dr. McRae, who was convalescing from an attack of appendicitis, asked me to take charge of the case.

On May 8th operated by median laparotomy. Upon an intra-abdominal examination we found a gravid uterus (about four and a half months), a largely dilated colon, through which the cecum and a portion of the small intestine had telescoped, and that the trouble was within the lumen of the intestine.

On incising the colon above the tumor, we found a carcinoma of the ileocecal valve and extending on into the colon; the valve was almost closed, and the pus collecting behind the valve caused the apparent tumor in the left iliac region. The accumulation would pouch the small intestine, until it was drawn out of the colon. As soon as the pressure was removed it would discharge itself and the tumor disappear.

A resection of the gut was decided upon. The exploratory incision being beyond the limits of the resection was closed. The cecum, including several inches of the gut on either side, including a corresponding V of the mesentery, was resected. This portion of the mesentery contained a number of enlarged glands. The gut was united by a mediate end to side implantation with Murphy's button. Dr. McRae, who assisted me, became so much interested that he forgot his weakness and rendered me invaluable aid. This was particularly true in the time we saved in placing the button. He placed the female half of the button in the

side of the colon, while I placed the male in the end of the ileum.

This time-saving was important, as the patient was developing pronounced shock.

Intravenous saline injections were used towards the end of the operation. After the operation the patient revived slowly but surely, and made an uneventful recovery. The button passed on the fourteenth day.

In December, 1898, this patient returned to Atlanta very much alarmed. She had suffered with increasing pains in her left side, beginning after a successful confinement in September, and lately had felt a tumor, as she expressed it, in this side.

The physical condition of the patient was so improved that she was hardly recognizable as the same woman we operated upon in May.

Upon examination I found a movable kidney. A few days afterwards I operated, and anchored the kidney with buried silk sutures. The patient made an uneventful recovery. A letter a few days ago, says the patient has completely recovered and has gained fifteen pounds.

Carcinomata of the cecum or ileocecal valve are rare.

In 100 cases occurring in the intestinal tract, the comparative frequency would be, rectum 75, sigmoid flexure 10, splenic colon 4, hepatic colon 3, transverse colon 4, cecum 2, ileocecal valve 2.

ARTHROTOMY, WITH EXCISION OF THE HEAD OF THE HUMERUS, FOR OLD DISLOCATIONS OF THE SHOULDER JOINT.

CASES.

Case 1.—Miss A. W. ——, white, aged 24. November 15, 1899. History: was thrown from buggy eleven weeks ago. Right shoulder and elbow joint injured. A physician saw the patient but made no diagnosis. On account

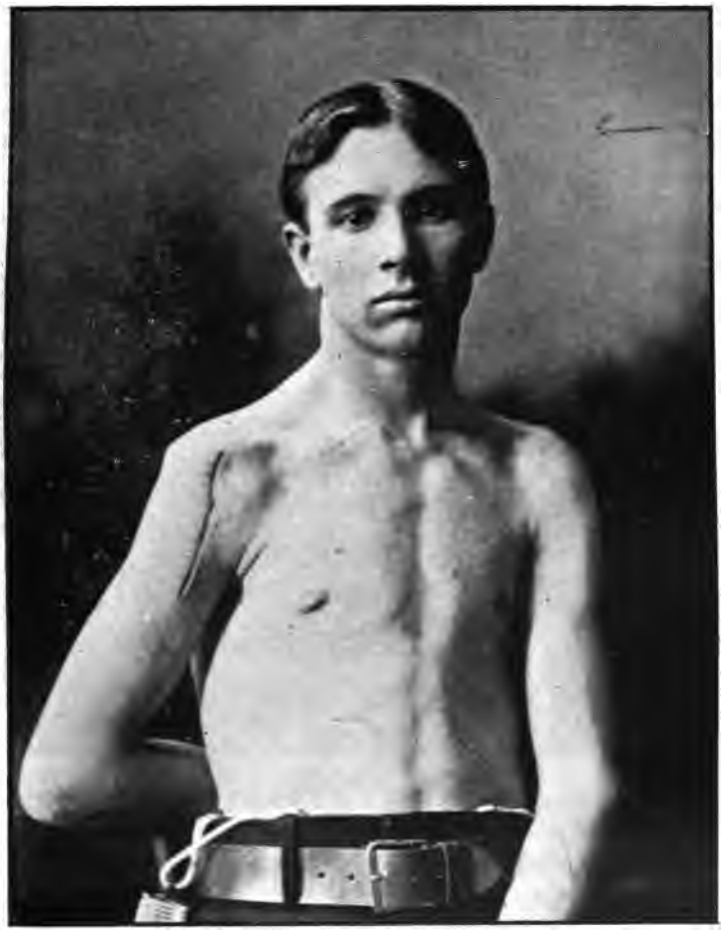
of continued pain and lack of motion consulted a second physician, who recognized the dislocation of the shoulder. He tried to reduce it, but failed.

Upon examination I found a subcoracoid dislocation of shoulder joint, and a badly treated fracture of the external condyle of the humerus. The patient was anesthetized, and an unsuccessful attempt to reduce by Kocher's method

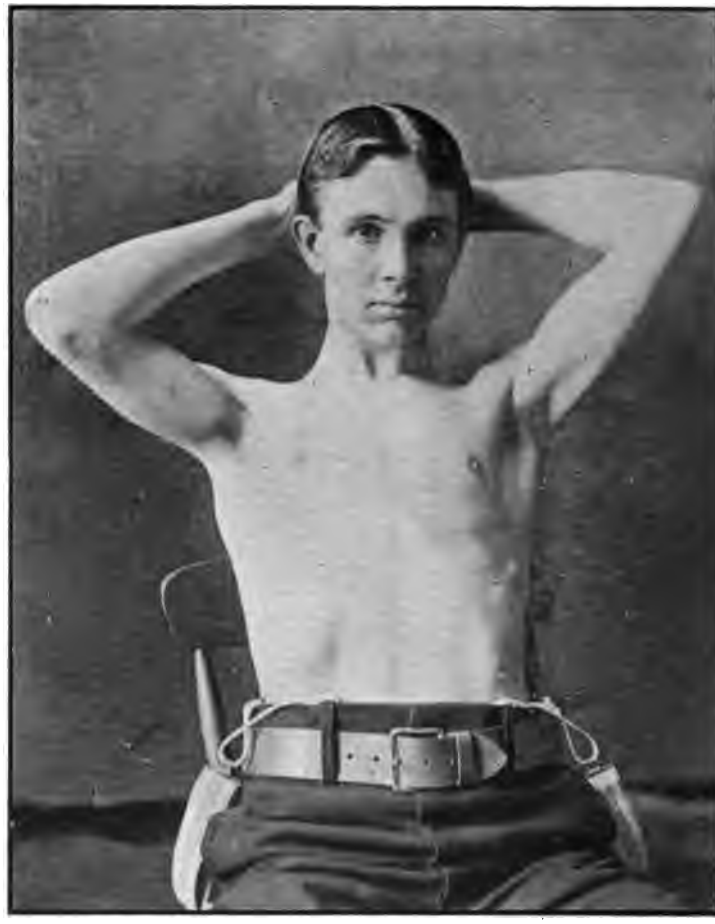
was made. Any legitimate force completely failed to even move the head of the humerus. Patient held for operation. On account of the indecision of the patient this was not made until November the 29th.

Operated by vertical incision, begun just below acromion process, and carried along inner aspect of deltoid for about five inches. When the capsule was reached, it was split transversely; the head of the humerus was released from its attachments by dry dissection. The head of the bone was then turned out and excised close to the attachment of the capsule.

The upper portion of the humerus was pushed up against the glenoid fossa, and the capsule shortened sufficiently to hold it there. In shortening the capsule all ex-



cess is inverted and helps fill the cavity, and leaves a very much smaller space to be filled in by adventitious tissue. Scar tissue is not wanted in these cases.



In this case the slack of the long tendon of the biceps was excised and the tendon united by mattress and coaptation sutures. The incision was closed except a small central opening for drainage.

There was primary union and the patient made an uneventful recovery.

Passive motion was begun early.

The patient was discharged on January 17, 1900, with full movements as shown in these pictures.

Case 2.—February 14, 1900. Emmet D—, male, white, aged 20. Shoulder dislocated two months ago while boxing. Immediately after the injury local physician attempted reduction, but failed.

On February 18th I anesthetized patient and made an unsuccessful attempt to reduce by Kocher's method.

On the above date we made the same operation as described in case 1. Patient made an uneventful recovery.

DISCUSSION ON THE PAPER OF DR. WESTMORELAND.

Dr. D. D. Quillian, of Athens: I desire to make a few remarks regarding the difficulty sometimes encountered in diagnosing strangulated hernia, and to illustrate this I wish to report a case that came under my observation a year or so ago. I was called to see a colored man about ten o'clock in the morning who was suffering from intense pain in the scrotal region. There was an enlargement not larger than a small walnut. He had no fever but gave a history of pain coming on suddenly while sitting at the breakfast table. He got up as usual in the morning; his bowels moved before breakfast, and while sitting at the breakfast table pain came on suddenly in the scrotum. I made a casual examination, diagnosed epididymitis, put him on the usual treatment for this affection, and told him I would call again the next day. At my next visit I found the swelling very much increased, prostration extreme, and an effusion in the side of the scrotum, where I found a small swelling the day before. I introduced a trocar and drew out about a half pint of bloody serum, hoping to get relief in that way. The pain continued. I gave a purgative, and later it was reported that the bowels moved freely, after which vomiting set in. By the next day the pain was extreme and prostration great. A considerable odor had developed. The patient being a negro I could not detect the

redness and general signs of inflammation, any more than a slight fever at the seat of the general swelling. I followed the expectant plan of treatment another twenty-four hours, and to my horrow stercoraceous vomiting set in. It was then too late for an operation. The patient died.

The point of interest in this case is a hernia coming on without any history of the patient having had hernia previously, without any straining or lifting, and the parts from the tight constriction became gangrenous and sloughed on the side of the constriction, following which death ensued.

I recall another case that I saw in consultation with another physician, the patient having had strangulation for four or five days before I was called. This was a child, nine years of age. I advised operation and proceeded at once to operate. On opening up the ring I found a knuckle of intestine two inches long incarcerated, and the muscular layer of the gut had entirely separated to the peritoneal coat on one side. I was in doubt whether I should make a resection or return the diseased gut, trusting to nature to restore the lesion. I applied hot sponges for some twenty or thirty minutes, and saw that there were red streaks beginning to shoot across the peritoneal covering of the bowel, and I decided to return the intestine, believing there was enough circulation left for the patient to recover. I completed a Bassini operation, and the patient made an uninterrupted recovery.

I report this case to show that in some instances where it seems the integrity of the bowels is almost entirely destroyed, by using hot applications and watching carefully we may find sufficient amount of circulation remaining to maintain the integrity of the gut and thus save a resection.

Dr. William P. Nicolson, of Atlanta: I wish to make a few remarks endorsing as fully as possible the many points that were brought out by the essayist. I wish to empha-

size the doctor's reference to the importance of the profession being educated up to and realizing the fact that a radical operation for herina is absolutely devoid of danger. The danger is far less from an operation for radical cure than almost any other surgical procedure, or rather it is safer for the patient than to wear the best fitting truss he can get. Any man who wears a truss carries his life in his own hand. Something may happen, and we know how fatal strangulated hernia is, so that I think every man ought to advise patients with hernia to be operated upon. A truss does not cure a hernia except in a small number of cases.

In reference to the subject of strangulated hernia upon which the essayist dwelt so much, I think the standpoint taken by him is eminently proper, namely, that every strangulated hernia is a surgical case. I doubt whether any man ought to reduce a strangulated hernia, one that has been down for any reasonable length of time. If it does not go back by gentle pressure and taxis, I do not believe it should be put back.

I follow the rule telling the patient to make a previous effort to reduce the strangulation, and if he is unable to do this, I administer an anesthetic and operate. Where a hernia has existed for any considerable time, I do not try taxis under an anesthetic because I do not believe we are justified in so doing. If an attempt is made to do this one may force back a piece of intestine that has been paralyzed and the trouble will persist. No one can form an adequate idea of the length of time a hernia has existed, nor as to the amount of damage which has taken place in the intestine. I have seen the intestinal wall damaged in a few hours in some cases, in others in twelve hours.

I recall the case of a young man who recently came under my observation. He suddenly felt pain in his groin, called in a physician, who recognized a small hernia. It was

tender on pressure. I could not make much taxis. An ice bag was applied and the intestine went back in two or three hours. He returned at the end of that time and the hernia had been spontaneously reduced. The young man's condition improved, but twenty-four hours from the time of the original appearance of the hernia I saw him and he had all the appearances of a man very ill. There was profound shock, a rapid pulse, stercoraceous vomiting. He was placed upon the operating table as soon as possible. The intestines were found distended, and peritonitis had set in. I pulled out fifteen or twenty feet of the intestines, and from the original point where the intestine had been caught I simply straightened out a kink, reduced the intestines, applied hot water, washed the bowel, and the patient recovered. Here was a case where spontaneous reduction was not effective in relieving the patient.

Dr. Westmoreland (closing the discussion): I want to review for a moment the points it was my desire to elucidate, and one of them is the frequency of hernia, that is, five per cent. of all the population. The next point is a mortality rate of one in six hundred from all cases. These figures are taken from the United States census reports, and they are apt to be under rather than over what actually occurred. This was before the last decade. Frequent operation now has decreased the mortality.

In taxis we have mortality after reduction from it of over 7 per cent., while in operations for hernia we have a death-rate of less than one per. cent. There is, therefore, no question as to the advantage of operation over the truss. The truss, after the patient has attained the age of four or five years, is only palliative. It does not cure and every patient who wears a truss is liable to the danger of strangulation. It may occur at some isolated point where the patient cannot get treatment. In a traveling man it may occur at sea,

and the danger under such circumstances is much increased, likewise the mortality. The general profession do an immense amount of harm by telling the laity that the truss is a curative agent, or that it will cure hernia. This popular idea arises from all quack hernia cures, injection methods, etc. We know from a compilation of statistics that the injection method increases the danger, that following this method inflammatory adhesions are thrown out, and even in a small hernia, if it temporarily occludes the sac, the scar tissue which is created stretches, and there is always a return. There is no truss which is absolutely curative after the child has passed the third year. Under operative methods the mortality decreases with each thousand cases, so that now it is generally accepted that the danger in operating on hernia is very little. Indeed the danger is no greater from an operation than it is from the administration of the anesthetic.

With reference to strangulated hernia, all of those cases should be operated on as soon as the diagnosis is made. The first case I ever saw was in consultation. I suggested operation but the physician decided to try taxis at intervals during the day of every hour or two hours. In this case their manipulations resulted in gangrene, and as soon as this occurred spontaneous reduction took place, followed by death of the patient. Since then I have not tried to reduce a strangulated hernia.

DISEASES OF THE STOMACH.

EDGAR J. SPRATLING, M.D., Forsyth, Ga.

Every living organism possesses a stomach or its equivalent. From the micrococcus to man the one common pedestal upon which all meet is appetite, catered to by a more or less well-arranged stomach. Neither brain nor spinal cord, heart nor lungs, are necessary to life; but a food receptacle is a requisite. Whether it be a mere absorbent surface or an excavation in the cell-wall of the organism, or an invagination by an inversion of the body itself, or the finely adjusted, very troublesome organ of man, it serves the same purpose, the channel through which nutrition is introduced into the animal economy; and it being the prime organ by right of inception and of use, it is, as well, the one first and most prone to become deranged. Nearly all physical ailments have some relation to nutrition. Give any man a strong, healthy stomach, perfect digestion, easy assimilation, with wealth or poverty, liberty or imprisonment, and happiness in some degree will be his; give him a stomach foul, heavy, repulsive in odor, refusing food, and unhappiness comes to him with malevolent thoughts toward his fellowmen.

A patient presents himself complaining of vague indefinable feelings of malaise without being able to exactly locate his trouble, yet knowing there is something wrong; he may have no appetite or he may eat too much, may be able to do his ordinary work with only slight extra effort, yet we have here cause to suspect a nutritional trouble; the

very vagueness of his complaint will make us expect it. We then give an examination to verify our suspicion, ask as to appetite, taste, abnormal sensations, itching or burning of the skin, dizziness, if there is belching or regurgitation of the food, if there is ever nausea or vomiting, if the bowels are regular, too frequent or infrequent.

Then, if possible or convenient, we pass to inspection, if there is bulging or retraction of the stomach, if the abdominal wall seems to be girdled as in an effort to support it. This inspection is not complete until the teeth, the tongue, fauces, uvula and tonsils are seen; the nose must also have our attention.

It does not seem amiss here to refer to the condition of mouth and nose, having a direct bearing upon digestion. A mouth deficient in secretion will be unable to handle the food properly. And if the salivary element is wanting one powerful aid to digestion is needed. Should the teeth be defective in quality or deficient in number the food will not reach the stomach in proper shape. Enlarged or painful tonsils or inflamed fauces will often prevent the patient from taking a sufficiency of food to insure health. And an elongated uvula, especially if it trails the back of the tongue, will create nausea and disgust that kill the desire for food. Diseased nostrils will not only abolish the appetite by their offensive secretion in the person possessing them, but be a very sure damper upon the gastronomic enjoyment of those near. Nasal so frequently precedes gastric catarrh.

After this inspection we pass to palpation. We go over stomach and intestinal tract, noting the sensitive areas, tumefactions, the throb of the aorta, if the stomach extends beyond its normal limits; if the intestines, especially the colon, present gaseous peculiarities. Should we be unable to outline the stomach, it being desirable, we introduce a

half drachm or so each of soda bicarbonate and tartaric acid separately dissolved in water, which gives us dilatation, when the stomach walls may be easily outlined; the same procedure may be used in the colon, care being taken in each case if we are dealing with organic lesions, for fear of rents being made.

Auscultation often aids us. We can hear fluid passing through the esophagus and get the splashing sound of the stomach when partly filled with water; sometimes, but not often, the so-called respiratory murmur may be noted which is produced by the stomach gliding against the abdominal walls. Sizzling sounds are frequently heard in the fermentative dyspepsias. The interior of the stomach may be inspected directly by the gastroscope, which is an adaptation of the long-used cystoscope; practically this is without value. Transillumination is a little more to be recommended as we have here only to let the patient swallow an electric light and note the translucency of the walls. Our most reliable aid in diagnosing the stomach is the test-tube; and here our first step is the administration of a test meal. Let the patient eat freely of soup, meat, potatoes and bread, noting the quantity taken related to the body weight. Or a small quantity of white bread and a cup of tea. In the first instance the food should be allowed to remain in the stomach at least four hours before being withdrawn for examination; in the second one hour is a sufficient length of time. Some authors prefer a pint of milk and a roll, the examination being delayed two hours after its ingestion. Every test meal should be administered after the patient has fasted at least seven hours. If it is possible to voluntarily expel the contents it is desirable to do so; in that way we get less newly exuded juices, which are rapidly thrown out under the irritation of the stomach tube or of any emetic.

After we have obtained the contents we note whether it is a well mixed chyme, or whether there are still large food particles suspended in it; and in case test dinner note whether we find particles of bread, potatoes or meat. Then we use the microscope, finding whether there are oil globules, and their condition; if there be meat, whether the muscle fibers have been attacked, or whether the sarcolemma is yet intact; if there are starchy particles, whether granules are entire or ruptured. Next we take the reaction; if acid, we try for hydrochloric acid by the following test: Resorcin five, sugar three, and alcohol to one hundred; make a mixture and allow a drop of this to mix with a drop of stomach contents; on heating this will develop a cherry red. For lactic acid we test with a two per cent. solution of carbolic acid having a drop of the sesquichloride of iron in it; to this, in a test-tube, we add the filtrate, obtaining a canary yellow; this has the further advantage of finding the fatty acids, also the inorganic, the first giving an ashy gray color, the second decolorizing the solution entirely. In this test for lactic acid we are sometimes confused by the phosphates which may be first removed by treating with ether. Propeptone is found by a solution of sodium chloride which gives a white precipitate. The peptone may be made out by addition of sodium hydrate followed by a few drops of sulphate of copper solution, getting a purplish color. A free pepsin may be found by placing a thin disk of egg albumen in a test-tube of stomach contents; it ought to be entirely dissolved in five hours. Rennet may be noted by mixing with milk and keeping warm, getting curds. The starches are easily discovered by a drop of Lugol's solution.

The stomach-tube, even for experimental purposes, should be used with caution where we have reason to suspect the presence of organic disease, especially of malignant type.

This applies as well to the so-called stomach-bucket as to the tube ; even the introduction of the sponge is at times dangerous, in that it may bring on contractions that result seriously. No instrument should be introduced into a stomach until a reasonable time has elapsed since any vomiting of blood. The instruments for determining motility are without practical value, as we soon learn by experience whether a stomach be sufficiently active to make its contents pass on into the intestines.

Of all subjects that arise in the practice of medicine none gives the physician more uneasiness, more worry and frequent disappointments than diet. The Latin proverb, "So many men, so many minds," could be equally well said so many men, so many stomachs, for as every man's appetite is a law unto itself, so is every stomach governed by its own peculiarities; the mental impressions of the patient, the season of the year and innumerable and uncontrollable factors must enter into our consideration if we wish to have the patient pleased with our handling. One patient comes to us unable to eat sweets, another declares that meat of every description is abhorrent, while the third regrets that he cannot touch vegetables without distress, fats are both repugnant and harmful to the fourth, and even milk, our sheet-anchor, is refused by a considerable contingent. These facts, taken in connection with the iron-clad necessity of replacing as much nutrition as there is used up and wasted by the animal economy, force us to our utmost efforts catering to the whims of each stomach.

Our whole aim in acute gastritis is to feed the body while letting the stomach rest. We may accomplish this by giving predigested, easily absorbed foods by mouth, or even at times enemata; or we can for a short time depend upon the reserve force to sustain the individual. This should be

avoided wherever possible, as the tissue waste will have to be made up later.

About the blandest diet that can be depended upon for nutritive purposes would consist of a variation of bouillon, meat extract and solutions, milk, raw eggs, egg water, crackers, boiled brains and fowls and meat gruels. No patient should be kept on a diet too bland, as such management would inevitably work injury by getting the organ out of the habit of exercising its normal functions.

The most frequent disease of the stomach upon which the physician is called to exercise his care is acute catarrh or simple gastritis. Here we would only give the organ rest and conserve the physical energies, and recovery is quickly had. When catarrh has become chronic, lavage and spraying of the stomach walls is our surest remedy. This condition is easily diagnosed. A patient comes complaining of weighty fullness, decidedly abnormal appetite, furred tongue, sweetish breath, irregular dreamful sleep, and we have sufficient indications for the use of the tube to verify our diagnosis of gastric catarrh; always barring, of course, cases in which we are led further to suspect an actual organic lesion other than ulcer.

Ulcer ranks next in importance and frequency. Here our diagnosis is equally easy. We get all the symptoms of gastric catarrh, and in addition local tenderness and possibly hematemesis. Perhaps the majority of authors condemn the use of the tube for diagnostic purposes, in case of suspected ulcers. This objection is without foundation; as with a soft tube and care in introducing there is no reason whatever for doing an injury, except it is done by the unusual contractions of the stomach; this can be avoided by the use of cocain or morphine; here the gastric juice being so powerfully acid that the tube with its local applications is more demanded actually than in any other

stomach trouble; it is so manifestly out of the question to treat an ulcer on the wall by medication to its surface, which is so protected by thickened secretions that no reasonable amount of medicine ingested can touch or can benefit, with this one single exception, tonics and hematics generally being indicated as aiding the reparative power of the system. The futility of medication here is further emphasized by the fact that the majority of ulcers are situated on the back and upper surfaces of the stomach, while the medicine seeks the pendent portions. The importance of diagnosis and treatment of the ulcer by the general practitioner is seen when we say that one in five of adults at necropsy is shown to have suffered from it.

Epithelioma, while not a so frequent affection, yet one or several cases usually come into the life of every practitioner, and the ability to diagnose and prognose is greatly to be desired. Without the aid of the microscope in the early stages it is practically impossible to distinguish between epithelioma and ulcer. Carcinoma ventriculi is shown by statistics to be increasing more rapidly than any other fatal disease that affects humanity. It is essentially a disease of full grown active manhood or womanhood, coming when the individual is worth most to himself, more to his family and to society. This is why its diagnosis is most important.

Hyperchlorhydria ranks first in importance and frequency of the functional disturbances of the stomach. Its diagnosis is most easy, but the prognosis as to the continuance of the trouble is very uncertain, though we are able always to assure the patient that it is not to be fatal.

Excessive secretions of all sorts frequently come to our attention.

The opposite condition of achylia gastrica is rarely met with, though when it does occur it is perhaps the most dis-

heartening, most annoying and discouraging that can affect a patient. By this term we mean the normal secretions of the stomach are absent. It is usually produced by an actual atrophy of the gastric glands, which defect is insuperable, leaving us at the mercy of predigested or otherwise easily absorbed foods.

Of the gastric neuroses we need only give a mere mention of bulimia, which is the so-called morbid appetite, the patient never being satisfied and always hungry; this is often due to foreign substances, either living parasites or some solid body swallowed. Our only resource is to find and remove the cause.

The motor neuroses do not properly come under the head of the disease of the stomach, but under the care of the neurologist.

The relation between the diseases of the stomach and those of the other organs of the body is very close; we have all been taught by many a sad experience to look with suspicion upon an indigestion that has arisen without any apparent indiscretion in diet and perhaps accompanied by just the slightest hacking cough. The kidney makes its own impressions upon digestion. Almost every heart lesion gives us a thickened coating to the stomach.

On the other hand the stomach is the gateway leading to innumerable disorders; it does this both by direct impressions and by lowering the body nutrition. I do not venture contradiction when I say ninety cases of every hundred in epilepsy come reflexly in the beginning from the stomach. Those of us who have dealt with the defective of every class, with the lunatic, the epileptic, the imbecile, the idiot and even the criminal, have found by experience that their emotions are swayed and their actions determined largely by the digestion.

A SUCCESSFUL CASE OF SPLENECTOMY FOR MARKED CONGESTIVE HYPERTROPHY WITH REMARKS.*

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In the *Medical News*, 1899, lxxv., 848, I reported the history of my two cases of splenectomy with a general résumé of the literature of the subject up to that time. One of those operations was done for a leucocythemic spleen weighing twelve pounds and seven ounces, and as a complication she had clubbing of the cardiac valves. Death occurred from shock just as the tumor was being pulled from the abdominal cavity. It seemed the support to the diaphragm and heart by pressure from the large spleen had been gradually increased by the growth of the tumor and now was necessary to prolong life, and as soon as it was removed by taking away the tumor collapse immediately occurred. I now believe removal of the enlarged organ under such conditions, even though the heart be normal, is absolutely unjustifiable.

The other case was one of enlarged, movable spleen associated with tubercular peritonitis and splenitis, the organ weighing twenty-eight ounces, about four times its normal weight. In this instance the tumor was successfully removed and the patient was alive several months later,

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though she was thought to be suffering from pulmonary tuberculosis. At the time the paper mentioned was prepared I had another much enlarged spleen to deal with and under peculiar circumstances. She was therefore kept under observation nearly three months before operation. She was in the hospital during the two months just preceding operation, and opportunities for carefully studying her condition were afforded and accepted. In this case careful and frequent blood counts were made, as well as a complete record of her pulse and temperature and many other details preceding operation. The changes in her condition subsequent to operation were given in detail and show how little harm results from extirpation of even such a large spleen as was this one, and, *au contraire*, the signal benefit to be derived from its removal—an improvement that was not possible of attainment in any other manner.

Considerable emphasis is placed upon the importance of observation of splenectomy cases, other than emergency operations, for a considerable amount of time previous to operation, in order to be certain of the blood conditions and to attempt to at least arrive at a conclusion as to the actual cause and character of the splenic condition. This may be materially aided by continuing the study after operation. This is absolutely necessary as it is well understood that not all cases of enlarged spleen are amenable to extirpation. Nearly as many cases of splenectomy have ended fatally as have ended successfully, and for the very reason that the blood conditions had not been studied before operation, the advantage of which was not realized or understood, and as a result the operation has been many times done in cases in which we know to-day it is absolutely contraindicated.

The principal reason usually for removal of the spleen is its enlargement and this produces marked distress according to its size, the number and character of adhesions and

the interference with the functions of other organs. The sense of intolerable dragging when the tumor is large often demands removal, provided other conditions permit it. This enlargement is usually due to paludal, tubercular or idiopathic causes, malignant disease, wandering of the organ, axial rotation, echinococcus and other cysts, chronic congestion, amyloid disease and injuries, such as rupture. Perhaps the most frequent cause of enlargement of the organ, leucocythemia, is the one condition in which the operation of extirpation should almost never be performed. More than 100 cases of splenectomy for leucocythemia have been reported and in but three of them was it successful. Such results should be sufficient to put this indication for the operation practically beyond dispute. Some writers, however, believe the operation is justifiable when the relative proportion of red to white blood-cells is not lower than 50 to 1. In some cases perhaps this proportion may not be markedly dangerous, but we must remember the spleen does reach a tremendous size in leucocythemia, often weighing from twenty to fifty pounds and the adhesions may be formidable. In such cases certainly the fifty to one rule would be a very dangerous one were it not that in these very marked cases of enlargement the ratio is usually greater than the one mentioned. It shows, however, the necessity of knowing the blood conditions. Nor should the proportion of the red and white blood-cells be all we should attempt to learn in examination of the blood. It is well known that different varieties of both red and white blood-cells have different functions and that the relative numbers of these species of them vary quite markedly in different specimens of blood, whether taken from the same or different patients. This is certainly an element of great importance. Aside from this it is of the greatest moment to know the hemoglobin percentage of the blood of a

patient suffering from a leucocythemic spleen. If this be not far below the normal as shown by the present inaccurate instruments, the prognosis of the surgeon is less grave. A blood count of 4,000,000 red and 6,000 to 9,000 white blood-cells and a hemoglobin percentage above seventy per cent. would ordinarily be considered a safe blood condition for splenectomy. But should the red cells be only 2,500,000 and the white ones increased to above 9,000, and perhaps the hemoglobin percentage be below seventy, I would conclude splenectomy, under the most favorable conditions otherwise, would be absolutely interdicted, unless death without operation seemed unavoidable. It will be noticed this blood-cell proportion is far above the fifty to one. There has often been noticed a paludal intoxication accompanying enlargement of the spleen in people exposed to this germ that can only be removed when the spleen has been removed. This seemed to be so certain to Jonnesco and Vanverts that they have strongly recommended splenectomy in marked cases of malarial intoxication that did not yield to ordinary treatment. The effect of splenectomy on the conditions of the blood is often markedly emphasized in malarial hypertrophy. In wandering spleen there is great danger of sudden torsion of the pedicle with very severe dangerous results or adhesions to other organs, causing marked difficulties and grave dangers.

Splenectomy is not an operation to be lightly entered upon with scarcely any knowledge of the condition demanding it and of those absolutely contraindicating it. It is fully as important to know when not to do the operation as when to intervene surgically.

As previously mentioned, in the enlarged leucocythemic spleen the conditions aside from those of the blood must be very good indeed to warrant entering on the procedure. If the organ be very large the result will be less satisfac-

tory, and if the adhesions be severe the result is still more greatly jeopardized. Vanverts found in thirty-nine cases of enlargement with marked adhesions twenty-eight died, while in thirty-five without adhesions only two died. Profound cachexia is a very dangerous complication. Extreme enlargement of the tumor, especially if it be solid, is a signal disadvantage to the operation and to the patient, as it prevents easy manipulation of the pedicle in operation and tends to greatly add to the shock by the traction and extra manipulation during its removal. Of course the general health of the patient will influence the result. If the patient be one that has always been unhealthy the result will not be so good.

The history of my third case is as follows:

Sophia Gl—, white, thirty-nine years of age, married, multipara, entered Columbia Hospital October 24, 1899. All her labors were normal; her youngest child is five years of age and she has had no abortions. Her menses ceased in 1897. Her children had chills and fever at irregular intervals during the summer of 1894, and she, while having no chills, was ill with malaria at the same time and lived in that portion of the city near the eastern branch of the Potomac river. She first noticed a tumor in the left side of the abdomen in 1897 and since then has been unable to perform her usual household duties. Just before entering the hospital a small ulcer appeared on the inner side of the anterior surface of the left leg. This increased in size shortly after admission and two small ones soon appeared near it. She was pale but in moderate flesh. She was immediately put in bed, as the pulse was 116 and her temperature above normal. A large mass was found in the abdomen extending from the diaphragm on the left side to the pelvic cavity where it was easily felt by the vagino-digital examination. Two notches were found in

the anterior margin of the mass and an enlarged spleen was diagnosed. During the first week in the hospital the pulse was high and the temperature ranged from 100 to 101. A blood examination made on the 27th showed red blood-cells 4,600,000 and hemoglobin ninety per cent. Under active general and local treatment the ulcers were not healed until about December 18th, on which day she was allowed to sit out of bed. In a few hours the healed surfaces became black and showed a tendency to slough. The left foot and right leg took on a marked petechial appearance which covered the rest of the body in a milder form. She was put in bed again. During her eight weeks in bed her general condition had not improved and the spleen had apparently enlarged. It was believed her condition, though unsatisfactory, could not be improved for operation. Blood examination December 14, 1899, showed no malarial parasites; red blood-cells, 3,500,000, and varied greatly in size. One or two megalocytes and an occasional myelocyte; leucocytes approximately normal in number, the mononuclears being slightly increased. Several times examinations for malarial parasites were made with negative results. From the 12th to the 24th of November the temperature was again nearly the same as during her first week in the hospital and the pulse ranged from 24 to 104. After that time the chart shows normal pulse and temperature. Operation was done December 21, 1899. The left kidney was found to be about twice its normal size, quite movable and to the inner side of the hilum of the spleen. It was not disturbed. A number of urinalyses had shown no abnormality. The spleen, extending from the diaphragm to the pelvic cavity and resting on the uterus, had five notches in its anterior border. Four large arteries and a number of smaller ones were encountered in ligating the pedicle. Two of them, close together, were

each about the size of the femoral, and two others, an inch apart, were but slightly smaller. Each was ligated separately with strong silk, fearing to trust catgut for this work. The arteries were each first clamped in two places near the spleen and divided with scissors between these clamps. Ligatures were then placed on the proximal side of them, and lastly, the veins were similarly treated. Slight hemorrhage occurred from a large blood-vessel stump on the spleen side, but as all the arteries had been previously secured no harm resulted. It amounted only to a partial drainage of the spleen. Owing to the size and position of the enlarged organ it was found impossible to first ligate and divide the gastro-splenic ligament as had been planned. To a considerable portion of the splenic surface were adhered intestine, omentum, diaphragm and parietal peritoneum. Two quarts of normal salt solution had been thrown under the breasts at the beginning of the operation, and the same amount was left in the peritoneal cavity, as the pulse had now risen to 136. That evening her pulse was 114 and her temperature 97.4; her temperature remained at about 99 until the evening of the 25th, when it went up to 101, the highest point noted previously to the 18th of January, the last day it was registered. This rise lasted but three days. On this date the blood count showed red blood-cells 4,192,000 and 8,000 white blood-cells. January 4th, 1900, a blood examination was again made by Dr. Carroll, who found no malarial parasites and nothing of moment. January 12th she was allowed to sit out of bed, and was discharged from the hospital thirteen days later. The leg ulcers had nearly healed and her appearance was much better. During the three first days post operation she slept but little and then seemed drowsy, sleeping most of the time and requiring to be awakened for nourishment. On the 29th she became restless and slightly

delirious. From this time to January 7th, she frequently cried with no apparent cause, accused herself of having at some former time committed some unpardonable sin and refused to be comforted.

This condition became better and believing her being in a room alone had a deleterious effect, she was put in the ward with other patients and was almost immediately free from her vagaries.

On January 23d her weight was 115 pounds, and on February 5th she visited the hospital and was again weighed and found to have gained twelve pounds. She had markedly improved in appearance and was bright, cheerful and energetic in her actions. Her cheeks were rounded out and rosy. Her leg ulcers were healed. On February 8th Dr. Carroll found her hemoglobin percentage was 74 and other blood conditions normal.

Report of Dr. James Carroll, hospital pathologist.

Spleen, Mrs. Gl—. Macroscopic. The organ presents the normal tongue shape, with a flattened slightly concave inner surface, a distinctly convex outer surface and somewhat tapering margins. It measures 11 and 1-4 inches at the smaller end, and a corresponding thickness of 2 and 3-4 and 1 and 3-4 at the ends respectively. The upper margin is convex and smooth, with the exception of a large fissure near the head. The lower margin is concave and deeply notched. The margins are everywhere thick and rounded. The color is dark red, apparently from congestion, and the consistency is rather softer than normal. The capsule is tense and smooth, and stippled with indistinct grayish points which represent the enlarged follicles beneath. The weight of the organ in the fresh state is 4 pounds and 4 ounces.

Microscopic.—The section reveals only a chronic passive congestion with hypertrophy of the pulp and follicles.

There is no deposit of pigment and the trabeculæ are not involved. Some of the veins contain large numbers of leucocytes, but in others the number appears to be about normal. The conditions found may be briefly described as a congestive hypertrophy.

No argument is needed to prove the advisability of splenectomy in a case such as this.

The operation has now a mortality rate of about 13 per cent., and this would be too high were all severe cases of leucocythemia and malignant disease excluded. Severe adhesions and marked hypertrophy of the organ are necessarily potent factors in making a mortality rate for splenectomy. Hemorrhage and shock are the principal immediate causes of death. The blood-vessels of the enlarged spleen are often found to be tremendously large and necessarily the blood loss is excessive in a very short time from even one of them should it be permitted at all. It is, therefore, strongly advisable to proceed with the utmost caution in severing and securing these vessels. If forceps are applied before ligation, as was done in this case, the operator should know they are reliable and that they will not unclamp or slip off. Then, to, the vessels should be ligated singly and well back from the cut ends on the central side with the ligature always passing through tissue as it passes around the vessel. It should pass through between vessels and never through any of them. This is exceedingly important. For this purpose silk is more reliable than other material because it is most easily knotted without loosening.

The arteries should be the first to be secured, as the organ is easily distended and more blood is taken from the circulation if they are allowed to continue pumping blood into the spleen after the veins are tied or clamped. The gastro-splenic ligament should be first clamped and separated, as it permits the spleen to be lifted up and affords better ac-

cess to the pedicle. If the hypertrophy is marked this preliminary measure will be ofttimes impossible. Under such conditions the first vessels coming to view will have to be the first to be secured and followed by the next coming into view, and this plan continued until all have been secured and separated. Removal of the tumor facilitates application of the ligatures.

Shock is produced by separation of many or dense adhesions, by manipulation of the organ during the process or removal, and by removal from the under side of the diaphragm of the pressure to which the lungs and heart, as well as the abdominal viscera, have become accustomed. If the tumor be large this is of great moment. This may be overcome by leaving a large amount of normal salt solution in the abdominal cavity when the abdomen is closed or by throwing it into the colon.

In every case in which it is possible, operation should be preceded by a careful study into the history of the case and careful blood analyses made. In my former paper, already mentioned, I took occasion to suggest the changes subsequent to operation varied according to the relative normal condition of the organ removed. It is well known these storms of fever, high pulse-rate and other manifestations of marked trophic and psychologic disturbances are often furious in the adult and in the child or young animal practically absent. In the case of the much altered spleen such changes in the vicarious functionating economy have begun long before operation, and thus leaves less to be done in that direction after splenectomy. It is probably from that reason that extirpation is not followed by the critical conditions incident to the sudden taxing of the compensating organs following removal of the normal spleen for rupture, torsion of the pedicle and other conditions.

Realizing this paper is already too long for its place on your program, I will not take up many interesting subjects in connection with splenectomy. I will merely mention that splenectomy for malignant disease has not yet been satisfactory. This is due to the disease spreading from the spleen very early and therefore rapidly appears in other structures only to cause an early death. For echinococcus and other cysts the operation is very successful, as it has been for rupture of the organ. During the past two years twenty cases have been operated for rupture and but two of them died. One of these fatal ones was severely mangled and had a rupture of the liver as well as of the spleen.

Splenopexy has been recommended and practiced abroad for removable or wandering spleen when the organ was less than three times its normal size. The principle of the operation was to form an extraperitoneal pocket by slitting the peritoneum, placing the spleen behind it after separating it sufficiently and then suturing the flaps over it. It need not be of necessity in the normal region of the spleen. I have had no experience whatever with this operation, and for that reason am not in a position to approve or condemn it. However, my impressions are that it is an unwise procedure. There is danger of sloughing of the flaps after the separation and of marked dragging and consequent injury from such suspension of a mass of tissue weighing even twenty-one ounces.

DISCUSSION ON THE PAPER OF DR. BOVEE.

Dr. J. B. S. Holmes, of Atlanta: I enjoyed the paper of Dr. Bovée very much, and in connection with it I desire to report a successful case of marked hypertrophy with displacement following an attack of malarial fever five years prior to the operation. The spleen was removed a year ago;

it weighed two and a half pounds; the patient made a good recovery. I show you the specimen.

Dr. Bovée (closing the discussion): The specimen exhibited by Dr. Holmes is very interesting, and I was pleased to hear that the operation was a successful one. It is one more link in the chain of evidence that splenectomy can be done successfully. The study of splenectomy in the lower animals has been of great interest, and also a study of the compensation that goes on after this operation, that is, the action of the lymphatic glands and of the bone marrow. Reigner had a splendid opportunity for this work. He did a splenectomy, and later had to amputate a leg of the patient, having the opportunity in that way of studying the bone marrow. Then, unfortunately, the patient had a ventral hernia in the line of incision made in performing the splenectomy, and he was able to feel the enlarged subperitoneal lymphatic glands and mesenteric glands through that, showing their enlargement. This has been studied more particularly in the lower animals, such as dogs, and it has been found that the removal of the spleen in a young animal, and in a child, is followed absolutely by no symptoms, but in the adult family there are marked changes which occur, usually beginning about a week after operation. There is a rise in pulse rate, perhaps to 140; the temperature is 102 or 103 degrees. The temperature is sometimes 102 degrees if the spleen is nearly normal, and the surgeon who takes charge of the case, unless he knows what to expect, is much alarmed by this condition, which may last for two weeks, then pass away and the patient recover. I do not recall any case that has been published where death occurred during the two weeks of what might be termed the crisis following operation. This crisis is of great importance and should be looked for in every case, and if the organ is large you will have the least of that disturbance. The nearer the organ approaches normal, the more disturbance you will have. You must

expect in cases of injury or rupture of the spleen, where you do a splenectomy, to find a practically normal organ. In movable spleen or wandering spleen, where the organ is not much enlarged, if it is much enlarged you will not have the same changes because the organ will be much congested; there will be changes in its structure owing to its dependent position. Torsion of the pedicle, if taken early, will give us this line of symptoms, but if it is late, so that the organ has been gradually increasing in size with chronic passive congestion, you will not have a similar range of symptoms. The spleen was quite large in the case I reported; it weighed four and a half pounds. In experiments on animals, by injecting salt solution under the skin, the spleen can be dilated to double its normal size. This dilation takes place rapidly, and does not interfere with the circulation . It drains very rapidly. There was bleeding from one side of the spleen in my case, but I was not at all alarmed about it because I knew that the blood poured out from a vessel which was simply coming out of the spleen, the arteries having been secured. Perhaps a pint and a half of blood poured out of the spleen between the time I cut the blood-vessels and the time it was weighed the following day. Considering the number of adhesions I had to contend with and the size of the spleen and the general condition of the patient, I feel gratified as to the result of the case.

TREATMENT OF APPENDICITIS.

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No subject in abdominal surgery has more fully claimed the attention of the medical world than the treatment of appendicitis.

After all that has been said and written, relative to the causes, symptoms, pathology, and treatment of this frequent, fashionable and fatal disease, the vital question of its proper treatment is still an open one, with the great issues of life or death depending upon its solution.

Until some satisfactory, uniform line of treatment is adopted by the profession, no apology is needed for further discussion and consideration of this subject.

It seems to be one of nature's laws that doctors must disagree. We do not treat pneumonia alike, nor do we administer the same medicines in typhoid fever. One surgeon advocates vaginal, another abdominal hysterectomy. One McBurney's, another Wyeth's method of amputation of the hip-joint. These may be regarded as legitimate differences—the variations of individuality.

But when one portion of our profession claims that a disease is purely medical and that Epsom salts is a specific, and another portion maintains that the disease is solely surgical and the bistoury the only hope of relief, it follows that one party or the other must be wrong in their conclusions, and that the patient must suffer in consequence of this difference.

A large, conservative, and respectable element of the profession have attempted to bridge over the gulf between cathartics and cutting by taking a middle-of-the-road course. They say that appendicitis is sometimes a medical and at other times a surgical disease—depending on its severity, number of attacks, etc.

While some of the best men in the profession are found in the ranks of the conservatives, I am free to confess that I have no very great sympathy with their views. It seems a begging of the question. Let us boldly take one side or the other of this question, and be ready and willing to give a reason for the faith that is within us.

Under present conditions the surgeon waits for evidence of perforation, abscess, general peritonitis, or for the quiescent period. While the general practitioner temporizes with calomel and Epsom salts—and the patient dies.

How many die annually of this disease we do not know, nor it is at all likely that we will ever know. Our present statistics are almost worthless. We get statistics only from a few of the best and most successful surgeons.

The advocates of Epsom salts do not favor us with many statistics, and those they do furnish are thoroughly unreliable, since at least one-fourth of their "cured" cases have their appendices out before the statistics reach us. I have not seen more than six or seven cases of appendicitis in two years who had not been "cured" from one to four times.

A surgeon with good statistics is very apt to report them; but few surgeons and physicians, with a high mortality, have the nerve to give us the benefit of their mistakes. I have been trying for months to study the statistics of appendicitis and find the mortality much higher than usually reported.

Dr. McRae, in his most excellent paper on Surgery, delivered last June before the American Medical Association,

gives statistics of 2,903 cases, published in 1898 and 1899, with a mortality of 13.74. That itself is pretty high—twenty-seven deaths out of every two hundred cases. But I have never been able to find the death-rate as low as that.

Since last June I have been able, through cases published in current medical literature, by letters of inquiry, and from personal observation, to study the statistics of 823 cases, and find the mortality over 15 per cent. I am satisfied that this is 5 per cent. below the actual mortality, under our present methods of treatment. If accurate diagnosis were made, and full statistics given, we would find the mortality 20 per cent. or more. In 106 conceded surgical cases that have come under my personal observation 98 were operated upon, 72 in the acute stage and 26 in the interval. Twelve died from general septic peritonitis, and eight were *in extremis* when seen, and an operation declined by the surgeons.

Several doctors of my acquaintance have operated for appendicitis from one to seven times, and have a mortality ranging from forty to one hundred per cent.

I know of a good hospital in the south, in which seven operations for appendicitis were performed in six weeks, with five deaths.

There is no disguising the fact, the mortality of appendicitis is high, and will remain so as long as our present methods of treatment obtain. There is danger to life in appendicitis in all of its forms and in all of its stages, but the real cause of its high mortality can be expressed in two words, *delay* and *inexperience.*

Dr. Wyeth says: "In all my entire experience with this lesion (appendicitis) I have yet to see a death which could not properly be ascribed to delay in timely and skillful surgical interference."

Dr. Murphy is equally emphatic. "Every case, promising or unpromising," he says, "should be treated by surgical operation at the earliest possible moment."

Both Drs. Morris and Price strongly advocate an early operation in every case of appendicitis.

My experience in the treatment of this disease leads me to unhesitatingly coincide with these high authorities. In my humble judgment there is but one safe, sure cure for appendicitis in any of its forms or stages, and that is to cut the offending organ out and close up the opening.

I am convinced, from a careful study of over one hundred cases, that the *materia medica* possesses no agent against the infection of the peritoneum from a diseased appendix, or one that can cure the disease when once established. I do not claim that this opinion is new or original, but simply that it is true and vital. I have never seen a case of appendicitis terminate fatally where operation was performed in the interval, or one in the acute stage, that had not gone on to general septic peritonitis. I have personal knowledge of twenty deaths directly attributable to delay in operating, and I know of nine deaths from imperfect or improper operations.

There is not a general practitioner in the State to-day, or in the country for that matter, who believes that medicine will cure every case of appendicitis.

The most ultra advocate of Epsom salts and calomel admits that in some forms and stages of appendicitis a prompt, skillful operation affords the only hope of relief; and yet they are willing to delay and temporize with a diseased condition which in any case may develop an abscess, a gangrenous appendix, or even a general septic peritonitis.

I have known a druggist in our city to be employed in his store until ten o'clock at night and die before morning

with appendicitis, and that while taking Epsom salts every hour.

Treves says: "Ninety per cent. of all first cases of appendicitis will get well without operation." If this dictum were true, which I am convinced it is not, who among us will undertake to say that he can accurately diagnosticate every "first attack" of appendicitis.

Sometimes the disease is so mild and the symptoms so masked that it is unrecognized by the patient himself; or, if recognized is deemed of too little importance to refer to a physician.

Even where physicians are called in "first attacks," they not infrequently fail to make a diagnosis and give to the disease some other name.

My observation inclines me very strongly to the opinion that every physician is not qualified to make a diagnosis in appendicitis.

The little appendix vermiformis is by no means responsible for every pain or disease in the abdominal cavity; but when it is at fault we owe it to our patients to be sufficiently familiar with its history, pathology, and numerous subjective and objective symptoms to readily recognize it.

In the case of the druggist just mentioned an autopsy revealed a gangrenous appendix, with general septic peritonitis—clearly the result of repeated former attacks of the disease, and yet there was no history of a previous "first attack."

I operated last week on a case of two weeks' standing, in which was found a gangrenous appendix, numerous old adhesions, with a general peritonitis. The patient, who is rapidly recovering, gives no history of a distinct previous attack.

I have seen in the last two years six or seven cases with similar histories. There might be some reason for the con-

tentions of our medical brethren if we were always sure that we could promptly recognize every "first attack" of appendicitis. Even "first attacks" have a very strong tendency to recurrence, but not as frequently as they do after a second or third attack.

McBurney says: "When a patient has had two attacks, he will as surely have a third as he will have the eleventh after the tenth, and every attack renders an operation more difficult and more risky."

To my mind no good and sufficient reason has yet been advanced for delaying an operation after diagnosis has been made. We all know that the mortality of interval-operations is almost nothing.

Treves tells us of one hundred and fifty cases he operated on with only two deaths. I presume that most of these cases were upon his ninety per cent. who get well without operations.

Morris recently reports a series of one hundred cases operated upon in the quiescent stage with a two per cent. mortality. I have never seen an interval case die from the operation. Yet, in spite of all this, if an operation is deferred and postponed on a patient who has had numerous attacks, and where there are many adhesions to break down, there is sure to be a considerable mortality, and the patient is never likely to be fully restored to health.

It is all right to wait for the interval to operate if you can guarantee to the patient that the intervals will come. All of us who have had experience with appendicitis know that the interval of quiescence does not always occur.

Delay is dangerous, especially in appendicitis; and the habit of many surgeons of waiting for the interval to operate adds materially to the mortality of this disease.

Every advantage that we can take of this disease lies in

an early operation. The incision then is smaller, and consequently the liability to ventral hernia less; the work is neater and more complete; we have few or no adhesions with which to contend, and it leaves us without excuse for failure to find and remove the appendix.

There is a continuous peril hanging over every patient who has had appendicitis, for we all know as a rule the tendency is to recurrence. Each attack increases the difficulties of the surgeon and the dangers of the patient. An operation done in the first twelve or twenty-four hours is almost without danger, and the mortality in such cases should not exceed two per cent. or less.

Some operations are dangerous, however, fearfully dangerous. Where the surgeon has waited for a quiescent period which never came, where he was almost persuaded to operate, but delayed too long for the inflammation to subside or for the abscess to be walled off—in these cases there is an ever-present danger and not infrequently a death.

The most dangerous and fatal of all cases are those turned over to us by the general practitioner for operation after he has run the gamut of sweet-oil, calomel, Epsom salts, and worst of all, opium. We have all seen these cases. They all give about the same history. The good doctor had at first administered Epsom salts and opium, and promised good results with great enthusiasm; later, he tried calomel or sweet-oil, but was not now quite so confident; the next day he advises waiting a little longer to give his treatment a fair chance, and keeps up the courage of himself and the anxious friends by reciting to them the long list of cases that he has successfully treated without operation; he reluctantly admits that the patient is in a very bad way, but that he has never used any other form of treatment and all had recovered. Soon, however, the fact is apparent to all that the patient is steadily growing

worse. Then he commences to explain that obstruction of the bowels has taken place, peritonitis has appeared, heart-failure is imminent, or sepsis has supervened, and as a last resort a surgeon is called in consultation. These are the class of cases where a surgeon sometimes declines to interfere on account of the seeming hopelessness of the case.

Another surgeon, more bold and conscientious, who labors to save life and not to make statistics, operates, and about forty per cent. of such cases are saved.

The median incision and free drainage will save many a case of appendicitis that seems perfectly hopeless.

As far as our present knowledge extends, the appendix vermiformis in the human being is rudimentary and functionless, and therefore of no possible use or benefit to man.

At any rate, he seems to get along as well, or better, without it than he does with it. An operation for appendicitis is performed in all cases for two reasons, first, to save the life of the patient, and secondly, to remove the cause of the disease. These requirements will not be accomplished unless the appendix is removed in every case. It is bad and improper surgery to leave after an operation the cause of the trouble.

With a little experience and care, every surgeon who knows his anatomy can find, and successfully remove, the appendix.

I never knew a case where it was left that it did not cause further distress and danger. In my experience and observation there is but one rational, safe treatment of appendicitis, and that is the prompt, skillful removal of the appendix in every case and in every stage of the disease.

DISCUSSION ON THE PAPER OF DR. MORGAN.

Dr. J. B. S. Holmes, of Atlanta: Dr. Morgan's paper is a very interesting and instructive one, and in the main I agree with him. I differ with him, however, on some points. While I believe that appendicitis is essentially a surgical disease, and should always be treated as such, I do not think every case should be operated upon as soon as it is seen, or as soon as the diagnosis is made. It has been my custom in the acute cases to watch them closely for twelve, thirty-six, or forty-eight hours, and if I do not note some improvement in the condition of the patient, then I operate. Where I can watch the case closely and carefully, I am in the habit, as I have already stated, of treating them medically for a time. If I could note an improvement I have deferred operation always, for we all know that if an operation is done in the interval the risk to life is reduced to a minimum. In the treatment of the acute stage it has been my custom to rely upon mercurials and salines. I do not resort to excessive purgation because I believe much harm can be done by such treatment. I am opposed as a general rule, to the use of opium. I use it as little as any man in the State. There are some cases of the acute form where the pain is so intense that more harm is done by allowing the patient to toss and roll about in bed than can be done by minute doses of opiates, just enough to relieve pain without risk of inducing intestinal paralysis. I watch the cases closely and always, without exception, advise operation after the acute stage is passed. It is true, that some will say that they have had one or two, or a dozen attacks, and yet finally get well. We all admit that patients frequently have several attacks, but we lose sight of our cases and we do not know what eventually becomes of them. We do not know when perforation may occur, after the danger signal

has been sounded to operate. Operation should be undertaken after the first acute attack. If the patient does not submit we cannot do more than our duty in advising it.

As to removing the appendix in all cases, I must take issue with Dr. Morgan. I believe in thorough surgery always. On the other hand, I believe in life-saving surgery. I think in many cases it is safer to drain the abscess cavity, even if we have to do a secondary operation to remove the appendix and liberate the adhesions, than it is to finger around too much in the abdominal cavity, and run the risk of breaking down the protective walls of the cavity, and lose the patient. I have operated on eight abscess cases, and in on ly one case have I had to do a second operation. The others have recovered. I am speaking now of those cases where the abscess was walled off. Of course where the appendix can be removed with great safety to the patient, it should be done.

Dr. Willis F. Westmoreland, of Atlanta: This subject is an interesting one, but there are one or two points in which I must disagree with Dr. Morgan. I do not think any case is too mild to undergo operation. Occasionally we find cases where an operation may jeopardize the life of the patient. Cases come under our observation in which we find it advisable, after seeing the patient and thoroughly examining him, to postpone surgical intervention and operate at a later interval. All cases of appendicitis are surgical, and we are called upon to operate sometimes either during the progress of the attack or the interval.

In regard to the removal of the appendix, in all cases, I think there are instances where we jeopardize the life of the patient by searching for the appendix and attempting its removal. Under such circumstances, the appendiceal abscess should be evacuated without breaking up the adhesions, and then at some subsequent interval an operation can be undertaken for the removal of the appendix.

Dr. J. Wesley Bovee, Washington, D. C.: I believe that appendicitis is strictly a surgical disease, and I also believe with Dr. Westmoreland, that an operation should be done at some time in the case. In very many cases an operation should not be undertaken at the time I see them, because when they come to me they generally have a high pulse, considerable elevation of temperature, and have been ill for a number of days. In many of those cases I fear that death is imminent, and I would operate under the most desperate circumstances if I thought I could save a life. I make it a rule to lose no time in searching for the appendix. If the abscess is circumscribed, I simply open and evacuate it, leaving an opportunity for drainage. I do not resort to flushing. If pus should escape into the general peritoneal cavity, we have a different case to deal with, and it is useless to expect a low death-rate in cases of peritonitis to any extent from such a virulent cause as appendicitis. In a few cases I have reopened the wound a second time a week or two weeks after the primary operation for emptying the abscess, and have found the stump of the vermiform appendix exceedingly small, not as much as an inch of it left, and the end sealed up. I do not believe that the stump of such an appendix, if left, will ever cause the patient any more harm than it was likely to have caused previous to the disease. Therefore having a patient on the table with a pulse of 140, a temperature of 103 degrees, life would be jeopardized to a great extent were we to use much time searching for the appendix, let alone removing it. While it is ideal surgery to remove the appendix, I think it is bad judgment under the circumstances. If appendicitis can be taken at the very onset in every case and operated on, the mortality would not be five per cent. Dr. Maurice Richardson told me that he did not think it ought to exceed one per cent. He believes in operating on cases as early as possible. The gen-

eral practitioner needs to be educated up to the necessity of early operation in appendicitis.

Dr. W. B. Hardman, of Harmony Grove: During the last ten or a dozen years in practice I have seen about as many cases of appendicitis, and at first I thought they belonged to the physician rather than the surgeon. During recent years of my practice I have had occasion to materially change my mind, and I agree with Dr. Morgan that it is a purely surgical disease and ought to be operated upon at once or during the interval. The last two cases I saw will illustrate the importance of operation. One of them was treated in the usual way which physicians adopt for treating appendicitis and pronounced cured. He soon resumed his work. In about five or six months I was called to see him again, at which time he was almost at the point of death. He had lifted a log of wood or something heavy, and in so doing had ruptured the appendix, which was full of pus and this killed him. In this case I was permitted to make an autopsy, and I have the man's appendix at home in a bottle, and he is in his coffin. The other case I cured three times. He had one attack after another, and I did not think it advisable to operate during the interval, and each time he thought he was cured, but during the latter part of his last attack I insisted upon operation. My brother and myself operated, and he made a nice recovery, and now says that he feels better than he ever did in his life. Other cases I have seen had recurrent attacks, and I regard them as only temporarily cured. I have reached the point now where I advise operation and tell my patients it is much better for them to have their appendices removed.

Dr. James T. Jelks, of Hot Springs, Arkansas (by invitation): I never hear the subject of appendicitis brought up but what I am interested in it very much. The

dictum has gone out from the profession that we must operate in every case as soon as we see it. I wish to enter my protest against the dictum of some surgeons who say that we must operate in every case as soon as the diagnosis is made. There are many reasons why I object to it. In the first place, if we had ideal doctors who made ideal diagnoses, and ideal surgeons who made ideal operations, I grant that the majority of cases of appendicitis would get well, because these ideal doctors and surgeons would operate in the first twenty-four hours. When this is done, the mortality is low. But we have not ideal doctors everywhere; we have not ideal surgeons, nor have we ideal operative surroundings everywhere. The country doctor knows this; the average doctor knows it. A large majority of the cases of appendicitis occur in country and village practice, and the question arises, is a man safer in the hands of the country doctor or country surgeon who has operated one or two times with a surgical operation than he is with the medical treatment by salts, etc. That is a very important question. If every case of appendicitis could be operated upon by a Deaver, a Morris, a Murphy, or Senn, in the first twenty-four hours, they would get well. But when you miss the first twenty-four hours you have lost the golden opportunity. That is the point I make. Then, what are you going to do? There comes up the power of resistance of the patient to the attacking enemy, and the character of the infective agent, whether it be a staphylococcus, which grows slowly, and gives nature time to throw out a protective wall to shut him up in a sense, or what is known as the fulminating variety of the disease, where the agent is perhaps a streptococcus, and where all patients die whether you do anything or not. Eighty per cent. of the latter cases die. But there is another thing to be considered. These patients, if operated upon in the first twenty-four hours, get

well. If operated on during the interval, they all get well. Richardson operated on 904 cases of appendicitis, 504 of which were operated upon during the interval without any mortality, and in the other cases he lost 24 per cent. Deaver, of Philadelphia, during the last two years, has operated on 466 cases of appendicitis, 264 of which were operated upon in the interval, and he did not have a death. What about the other cases? When he operated as soon as they were diagnosed and brought to him promiscuously, his mortality was 17 per cent. If he had operated on these cases in the first twenty-four hours, he would not have had five per cent. mortality. If let alone in the country or village, and then subjected to operation, when you see them four or five days after the disease has commenced, it is too late for the early operation, and too soon for the late operation. The late operation should be undertaken a week after the attack begins. Why? Because nature has walled off the inflamed and ulcerated appendix to protect the patient. What have you to do? Open the abscess like you would an abscess anywhere else, but let the appendix alone. Do not search for it and remove it. If you do you will tear down nature's protecting wall, and you will have the privilege of burying some of those patients. The mortality from 6500 cases under medical treatment, such as salts, etc., was about three per cent., but the general arverage mortality from medicine was 19 per cent.; Deaver's mortality from surgical operations 17 per cent. in the acute cases; Richardson's mortality in the acute cases 21 per cent., and 19 per cent. mortality under salts.

Dr. J. McFadden Gaston, Jr., of Atlanta: I think we are likely to go to extremes in discussing the subject of appendicitis, and probably the essayist has taken one end of the dilemma, and others are taking the other end of it. I believe there is always a middle ground. All cases in med-

cine or surgery should be studied carefully, more particularly cases of appendicitis. There is a stage early in the disease, as in all cases of inflammation of an organ, where prophylaxis is valuable, and I do not see why all cases of appendicitis should be operated on as soon as the diagnosis is made. I do not see why there should be always suppuration after every case of inflammation in any disease. We should carefully study the case and treat it as an inflammation in the early stage. If the case should go on to suppuration, then we can operate on it. In the early stages the inflammation or the appendix may be treated by various medicines, as well as external or local applications. Internally we may give mercurials and salts, sometimes opiates, but to say that we must follow any one kind of treatment in every case to the exclusion of others would be to lay aside everything except the diagnosis and treatment. If we follow the essayist, we simply lay aside the pathology of the disease and state that we want the diagnosis made first. After the diagnosis is made, the next thing to be considered is operation. In view of these facts, I think it would be wise for all of us to study each case carefully, and I might say prayerfully, and particularly the early stages of the disease.

I reported one case to the Association at a former meeting which I had treated successfully by medical means, and the patient has not had any serious trouble with the appendix for five years. I recall another case which came under my observation at about the same time. The patient was treated surgically and has not had any serious trouble since. Both lines of treatment are appropriate and useful; they are absolutely necessary in their appropriate sphere; therefore, I would like to enter a word of protest against some of the remarks that have been made, and would make a plea in favor of a careful study of the pathology of the disease and treatment according to the stage in which it is found. Our

treatment should be governed largely by the manifestations of the symptoms. If a case should progress so as to require operation, operate upon it, but there are certain conditions where an operation is not called for at the time the case is seen. Every case of every physician should not be operated on in every stage of appendicitis.

Dr. Morgan (closing the discussion): If there were anything required to thoroughly convince me of the importance and wisdom of the views just advanced, it is furnished by the discussion which my paper has elicited. Dr. Holmes does not believe in an early operation in every case. I am sorry to say that he is not alone in this respect. He is in goodly company; a great many other surgeons entertain similar views.

Dr. Holmes: In my remarks I said that the condition of the patient would govern me in regard to early operation.

Dr. Morgan: I beg your pardon, doctor, I understood you say that you preferred to wait for the interval to operate.

Dr. Holmes: Where the condition of my patient is such as to warrant an operation, I perform it.

Dr. Morgan: Well, at any rate, the point I was about to make is, that you or any one else, cannot tell in what class of cases the interval will occur. No one can tell with certainty when we are going to have a period of quiescence. Many cases that could have been saved have been allowed to die while waiting for this period.

We all admit that the pulse gives us no information as to the seriousness of the attack. Pain, however severe, indicates nothing as to whether the pus is being walled off, or is free in the peritoneal cavity.

Absence of pain may mean resolution, or it may mean gangrene. Perforation can be no more foretold than the perforation of typhoid, or the rupture of an aneurism. By

delay in operating we invite the very conditions we regard as hopeless.

I believe all of you, with the exception of Dr. Hardeman, disagree with me on the necessity of removing the appendix in every case. I have seen the appendix left in only three cases after operation. One of these died in about one week from septic peritonitis. Another one, a lady, after suffering for five or six months, had to undergo a second operation, which was far more difficult and dangerous than the first one. The third case, a middle-aged man, was operated on in our hospital week before last. The wound was left open, the abscess drained thoroughly, but the appendix was not removed. In this instance the appendix was supposed to form part of the abscess wall, and the surgeon was not sure that it was the best surgery to remove it. In about seventy-two hours the temperature went to 102 and remained there. Another operation had to be done with the patient much weaker, and in a worse condition every way, than at the original operation. The appendix, which was gangrenous, was removed and all of the bad symptoms immediately subsided. The source of danger still remains, and the operation is but half completed, when the appendix is not removed.

It is just such a line of treatment, as indicated by Dr. Jelks in his remarks, that is responsible for the present high mortality of appendicitis. He entertained us with his ideas about ideal surgeons and ideal surgery. The ideal surgeon is one who saves the life of his patient, and in appendicitis, this is only guaranteed by a prompt diagnosis and an early operation.

Dr. Jelks strongly advocates the opsom salts treatment, and tells us of the small per cent. of cases that die from medical treatment. Not a single one of these cases can be said truly to have been cured. In fact, he does not mean cases

at all; he refers simply to attacks. No attack of appendicitis should ever be reported as cured until at least two years have elapsed. No recurring or chronic cases should be reported as cured, for the patients, while perhaps out of bed for the most of the time, are certainly not well or cured.

A very large majority of these cases sooner or later find their way into the hand of the surgeon for operation. In the meanwhile, the patient has lost weeks and even months of precious time, has suffered in mind and body, and the difficulties and dangers of the operation have been greatly increased.

It has been estimated, says Dr. McBurney, that 27 to 30 per cent. of all cases treated medically die sooner or later if not operated on. This estimate may be true or not, I do not know; but this I do know, that if all cases of appendicitis were operated on as soon as diagnosis was made, even where the surgeons did not do perfectly ideal surgery, the mortality of this disease would be far less than it is now.

It is no excuse for a physician to physic his patient into the grave because he cannot do an ideal operation. I say most emphatically, if a physician, who is treating a case of appendicitis does not feel confident of his ability to operate properly on the patient at the time the operation is needed—when it offers an almost certain cure—it is the duty of the physician, both to himself and to his patient, to call in a surgeon who can operate.

No patient should be allowed to wait, and wait, and be dosed with Epsom salts and finally die, because his physician does not know how to do an ideal operation. My only contention is, that there is nothing more dangerous than delay in operating for appendicitis.

It is dangerous to wait for the interval, for we never can tell in what particular case the interval of quiescence will fail to occur and septic peritonitis result.

MANAGEMENT OF THE ACUTE DIARRHEAS OF INFANCY.

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The diarrheas of infancy may be divided, on the grounds of etiology, into two classes. First, those of nervous origin and, second, those caused by bacteria. D'Orlandi has shown that while in the feces of the former there are a great many bacilli, yet there are a very small number of cocci, with only an occasional diplococci and never streptococci, whereas, in the latter form the diplococci were very numerous, and in a severe case of gastro-enteritis two chains of streptococci were found.

Simple Diarrhea.—The diarrheas of nervous origin are the result of manifestation of increased peristalsis. This increased peristalsis may be caused by different conditions acting through the central nervous system, or by the mechanical action of undigested food. The most important examples of the first are those caused by sudden changes in temperature, long exposure to heat or cold, fright or fatigue; of the second, food that has failed of digestion, either on account of its unsuitableness for digestion or because the digestive power is functionally weak. In either case such food acts as a foreign body. The mucous membrane of the intestine shows no pathological changes. The number and consistency of the dejections are increased, and, except for the presence of undigested food, they are normal in character. Possibly as good a name as any to call these

diarrheas are "simple diarrheas." Their chief danger lies in the fact that they render the intestinal tract liable to the invasion of micro-organisms. For this reason they never should be neglected, especially in warm weather.

Treatment of Simple Diarrhea.—The treatment consists essentially in removing the cause. In case of fatigue or fright it is an easy matter. When caused by temperature a change of climate may be necessary. When the trouble is caused by undigested food, it, of course, should be gotten rid of. This is best accomplished either by castor-oil or calomel. In most cases castor-oil is preferable, giving it to infants under one year of age in two teaspoonful doses. If there is vomiting calomel is better, and should be given in one tenth grain doses combined with bicarbonate of soda, every half hour until a grain is taken. The infant should be kept quiet. Rarely, it may be well to wash out the stomach and colon.

As a rule the diarrhea ceases after the cause has been removed; if, however, it does not cease, then attention should be given the increased peristalsis. Opium, in the shape of paregoric or some of the astringents, can be guardedly used. This condition, however, with very rare exceptions, is the only condition in which the use of opium is allowable. It is generally well to withhold food for several hours at the beginning, and then to begin with a dilute alkaline sterilized milk. Brandy, at times, is very efficacious, as the increased peristalsis is often due to a general weakness.

Infective Diarrhea.—Micro-organisms are the cause of a large proportion of the acute diarrheas of infancy. These organisms may be the ordinary cocci found in the intestines, or they may be such as are not ordinarily found there. They, as a rule, enter the body with the food. Large numbers of examinations, however, have failed to show any re-

lation between any special form of bacteria and variety of diarrhea. Hence our present knowledge of the bacteriology of the discharges gives us no help either in diagnosis or in treatment. The intestines may show all grades of inflammation from simple catarrhal or simple follicular hyperplasia to follicular ulceration and the formation of false membrane. The severity of the symptoms are often no index as to the extent of the pathological changes.

The constitutional symptoms are due partly to lack of nourishment and the withdrawal of fluids; but chiefly to the absorption of the toxins. The most common of the symptoms due to toxic absorption are reflex vomiting; hyperpyrexia, prostration with cardiac depression and nervous excitement shown in restlessness, incessant motion and sleeplessness.

The acute diarrheas due to mico-organisms may be roughly divided, using the nomenclature of the American Pediatric Society, into the fermentive diarrhea, ileocolitis and cholera infantum, all calling to a certain extent for different lines of treatment, yet certain general methods being applicable to all. The most essential is prophylaxis.

Prophylaxis.—Prophylaxis, while important at all times, is particularly so during the summer and early fall. The very best hygienic surroundings should be thrown around the infant; it should be given plenty of fresh air and bathed often. Care should be used not to overfeed, as less food is required during the hot weather, and again the depression caused by the heat retards digestion. A great deal of pure water should be given to make up the deficiency in fluids. As the micro-organisms are introduced with the food, great care should be used to always give a fresh and sterile food, and especial care should be given to the milk supply. It should be remembered that pasteurization or sterilization of milk does not destroy the toxins in it; it merely pre-

vents the formation of more. The toxins present in milk before it is sterilized may be sufficient to cause severe or fatal symptoms.

Hygienic measures are of great importance in treatment as well as in prophylaxis. The infant should be kept quiet, given as much fresh air as possible, bathed often and lightly clothed, protecting, however, the abdomen with either a spice bag or warm flannel. The napkins should be disinfected at once to prevent reinfection. Since, as has been stated, many of the most serious symptoms are due to the absorption of the toxins, it is evident that any treatment that tends to prevent the natural elimination of these poisonous products in the dejections is absolutely *bad*. The frequent discharges are nature's method of elimination and attempt to cure. Therefore, opium in any form is positively contraindicated. It can but simply do harm. Astringents are only less harmful because they are less active.

Fermentive Diarrhea.—Almost all the summer diarrheas belong to the fermental class, but in making a diagnosis on the ground of symptomatology, it should be borne in mind that in many cases there is no relation between the severity of the symptoms and that of the pathological lesions, and that conclusions based entirely on symptoms may be erroneous.

The number of discharges in fermental diarrhea is only moderate, as a rule not more than ten or twelve in twenty-four hours. The color varies from yellow and green, through all the shades of green. Often they are watery or frothy and may contain more or less curds and mucus, but rarely blood. The amount of the discharge is usually comparatively large. The odor is always offensive—in some cases sour, and in others very foul. On this basis there have been two classes recognized; the acid fermentation (the sour), and the albuminoid decomposition (the

foul odor). In the first class the trouble is supposed to be due to the bacteria which thrive in the sugar or fats, and in the second to those which thrive on the proteids. Tenesmus and pain are not as common as in ileocolitis. The various constitutional symptoms are present in all cases in various degrees of severity. Numerous conditions are met with, from the mild cases lasting a few days or weeks, to the severe toxic conditions fatal in a few days or even hours.

Treatment of Fermental Diarrhea.—The first indication is to remove the cause, viz.: the bacteria causing the trouble and their toxic products. Castor-oil is, I think, usually the most satisfactory when there is no vomiting, though calomel is always applicable in all cases, especially when there is vomiting. If the vomiting is severe and continues, it is well to wash out the stomach. This is a simple matter in infants, using a soft rubber catheter, cutting off the tips and rounding the edges by heat. A normal salt solution or a solution of borax or bicarbonate of soda is better than simple sterile water. If there is intense thirst it is well to leave a few ounces in the stomach.

It is generally well to wash out the colon. This is done by using a rather large soft rubber catheter and attaching it to a fountain-syringe not more than three feet above the patient. This catheter should be introduced high up into the bowels and several quarts of sterile water, or better, sterile water with one drachm of borax to the pint, allowed to run in and out. Tepid water is preferable. The value of washing both ends of the alimentary tract can hardly be overestimated.

Unfortunately, however, lavage of the alimentary tract does not rid it entirely of bacteria. Enough remains, if the conditions for their multiplication are favorable, to keep up or cause a reinfection. A condition most favor-

able for their reproduction is some product in the intestine which is a suitable culture medium. This medium enters the intestine through the mouth; therefore, our next indication for treatment is not to supply any such medium. For this reason it is best to stop all food for twenty-four hours. The praises for barley water, so often heard, are undoubtedly due to the fact that it contains little besides water, so that its use practically amounts to starvation.

Again, unfortunately for us, starvation does not diminish the number of bacteria to a point where they can do no harm, and besides the child demands nourishment. It must be given the least harmful form of food, or the form least liable to act as a culture medium. The odor of the stool, as being characteristic of acid fermentation or albuminoid decomposition, would seem to be some indication. Unfortunately, however, with the exceptions of the sour stools, this distinction is seldom possible. Here an albuminoid diet with an almost complete elimination of sugar certainly gives satisfactory clinical results. Ordinarily, however, the process seems to be a more complex one, and the selection of the food must be done on general principles.

Foods that are digested high up in the alimentary tract seem the most suitable. Personally I have found egg albumen very useful. Another food I like very much, though I have never seen it advocated, is okra, given in the form of a carefully strained soup. There seems to be a general opinion that as in the milk the bacteria are introduced into the system, it makes a good culture medium, and hence milk should not be used as a food. The ordinary custom seems to be to give some form of starchy food. I cannot see why, if starchy food is unsuitable for a well baby, it should be any less bad for

a sick one. After the preliminary starvation, I have always had good results in feeding a weak modified mixture of absolutely fresh milk. It is, without doubt, due to the dilution and freshness of the milk that the favorable clinical results are obtained. The mixture should be prepared from an absolutely fresh milk, and should be low in all its percentages, highly alkaline and pasteurized or sterilized. Experience will teach what percentages to give in each individual case. It is better to give small feedings often, than large ones at long intervals. As the patient improves the percentages may be gradually increased, together or singly, and the intervals lengthened until the proportions and intervals are such as are given to a normal infant of that age.

One of the ways of removing the cause is to destroy the cause, but, unfortunately, in these cases the destruction of the cause involves the destruction of the patient. Germicidal drugs sufficiently strong to be efficacious cannot be used with safety. Drugs, however, which limit the activity of the organisms can be used to advantage. After a considerable and varied trial of many of the antiseptic drugs and many of the newer so-called intestinal antiseptics, I have given up all except bismuth. I would say here, that this also is the general consensus of opinion of all those who have much to do with children. Bismuth is best given as the subgallate or subnitrate. Either, however, to be effectual must be given in large doses—not less than from one to two drachms in twenty-four hours. It is best given as a powder or in suspension in water or milk.

The sulphocarbolate of zinc in doses of one-sixth to one-quarter of a grain seems to prevent the formation of gas and to improve the odor.

Stimulation is necessary under the same conditions as are met with in other diseases.

Certain conditions due to toxic absorption may require special treatment. Excessive vomiting is best treated by washing the stomach; fever by baths; extreme restlessness usually yields to warm sponge baths or the bromides. In prostration and collapse stimulants are to be given along the usual lines. Brandy and strychnine are the most useful, and, as quick action is often necessary, they are better given under the skin.

Ileocolitis.—In ileocolitis are found the more serious pathological lesions. They are more marked in the colon and lower part of the small intestine. The discharges are usually small in amount, and contain much mucus, blood and sometimes pus and membrane. The fecal matter is generally pretty well digested. The odor varies, being putrid when there is sloughing and deep ulceration, but almost nil when there is much mucus.

Pain and tenesmus are marked symptoms. The abdomen, while soft at first, is soon tender and distended. Vomiting is usually not a prominent symptom.

Treatment of Ileocolitis.—The treatment is along the same general lines as the fermentive diarrheas. Purgation, starvation and diet are important in both conditions. The proteids are better borne in ileocolitis than in the other forms and should constitute a large proportion of the diet. The fats, however, are not so well borne and should be given in very low percentages. Bismuth is even more useful in this condition, as it not only diminishes the fermentation but also mechanically coats over the inflamed surfaces.

As the location of the lesions are usually low down, it is possible to reach the seat of the disease from below by irrigation. This provides a means for not only washing out the micro-organisms, but also of making local applications to them. Several quarts should always be used and should be allowed to run until it returns clear. Normal

salt solution or a two to four per cent. boracic acid solution is the best. Stronger solutions of antiseptics may be dangerous and are no better.

Irrigations should be used two or three times daily. A solution of starch water with one or two drachms of subnitrate of bismuth suspended in it should be injected after each irrigation. In this way the drug may be directly deposited upon the inflamed portion. Suppositories of one-tenth or one-sixth of a grain of cocain are often very efficacious for the tenesmus. Other special treatment is the same as in the fermentive diarrheas.

Cholera Infantum.—It is a common practice of many physicians to call all severe cases of either fermentive diarrheas, or ileocolitis, cholera infantum. The term should be applied only to those cases characterized by the most severe choleriform symptoms. It is a very rare condition. The pathological conditions are slight, never progressing further than hyperemia or desquamative catarrh.

Vomiting and diarrhea are constant and both very soon become serous, not mucus. As a consequence the tissues are rapidly deprived of their fluids. Thirst is very marked. Wasting and prostration are extreme. The internal temperature is high, though the surface temperature may be low. There is internal congestion. There are very marked nervous symptoms. It is a self-limited disease, and its course is not more than two or three days, usually less. The termination is almost always death.

Treatment of Cholera Infantum.—It is self-evident that in so rapid and fatal a disease the treatment must be both quick in its action and vigorous. There is probably vasomotor paralysis of the gastro-intestinal vessels. Hence food and drugs introduced into the intestinal canal cannot be absorbed, and thus can do no good and may do harm.

There are five main indications for treatment:

1. To empty the stomach and bowels of their toxic contents.

2. To supply fluid to the depleted tissues.

3. To restore the surface circulation.

4. To reduce the internal temperature.

5. To sustain the strength until the disease has run its course.

Purgatives act too slowly, hence our chief reliance must be in washing the stomach and irrigation of the lower bowel. This must be done early and vigorously. It is useless to try to supply fluids by the mouth, as they will be immediately vomited. Cold sterile water can be tried, however. The injection of normal salt solution into the cellular tissues is the only method of introducing fluid that can be depended upon. A pint should be given during the twenty-four hours. This not only supplies food to the tissues, but helps to eliminate the toxic products and to restore surface circulation.

Irrigation of the lower bowel with cold water not only tends to lessen the internal temperature, but restores the surface circulation. The best methods for doing this, however, are rubbing, mustard baths, and the warm pack. These procedures, however, are not those best fitted to reduce the temperature, hence it is well to use cold in the form of sponging, packs, or baths. Often it is necessary to determine in individual cases whether the internal congestion or the temperature is doing the most harm, and to treat the most serious condition. The relief of one often helps the other.

As food cannot be given by the mouth, the patient must be kept alive by stimulation. As drugs given by the mouth are not absorbed, this stimulation must be given subcutaneously. The usual stimulants are given; though atropine

seems the most useful, it should be given in doses of one-five-hundredth to one-eight-hundredth of a grain. Morphine can be given where the diarrhea, vomiting, or restlessness are extreme. One one-hundredth of a grain is usually sufficient. Give it under the skin, and use care not to give it too long nor in too large doses.

As improvement begins stimulants and water can be given by the mouth, and soon pasteurized milk of very low percentages can be added.

DISCUSSION ON THE PAPER OF DR. ROBINSON.

Dr. W. J. Bell, of Atlanta: I have enjoyed the paper of Dr. Robinson very much. The subject of diarrhea of infancy is a very important one and should be impressed upon every physician in the line of pediatric or general practice. All of us have a great deal to do with children from time to time, and I have had occasion to treat a large number of them during my service in the N. Y. Infant Hospital and in my private practice for diarrhea. Perhaps I can do no better than to emphasize one or two of the points that were so clearly brought out by the author. One important point is with reference to high irrigation of the colon in cases of summer diarrhea or ileocolitis. I know of no single measure which will give such decided results as high irrigation of the colon. This can be accomplished best by inclining the body of the child slightly downward at an angle of 10 to 15 degrees, and taking, as has been mentioned, a soft catheter and fountain syringe, and by a simple twisting motion the catheter can be passed clear up the descending colon, so that the catheter can be felt by palpation along the descending and into the transverse colon.

My experience has been that calomel in minute doses is of great advantage in these cases, but I always combine with small doses of soda and usually add podophyllin and salol.

The point made by the doctor against the use of opium is certainly well taken. In these cases we naturally have an anemia at the base of the brain. We may sometimes have meningitis but not so often as held by some, as will be shown by the record of autopsies in such cases. Drawing of the head backward and a drowsy condition, which is often nothing more than a basilar anemia and not meningitis, are often present. Opium in these cases is liable to induce a comatose condition, and jeopardize the patient. In cases of persistent vomiting the stomach-tube should be used, which is quite easy of accomplishment by the very simple device of a soft rubber catheter and a small glass or hard rubber funnel connected by a short rubber tube. After passing catheter to the stomach raise the funnel and fill the stomach, then lower and syphon contents out and make observations as to mucus, etc. The tube will often stop persistent vomiting with one irrigation.

We thank the doctor very much for this excellent paper.

Dr. J. W. Bailey, of Gainesville: The subject of diarrhea in children is an important one to every physician. I have been treating children for several years with various affections, and in these summer complaints my observation has been that the crying of the child from pain is attributable largely to the mode of feeding. This is one great trouble in all of the cases I have had to treat. The most important feature in my opinion, is to give them the proper food. I have never seen a case of cholera infantum but what I could attribute and trace it to bad nursing, mismanagement, and want of cleanliness, and more particularly the mode of feeding, and the preparation of the food. Of the foods advertised in our medical journals, some are very good. Others I do not care much about. I find that the less medicine we give to children the better it is for them; consequently I give very little.

I believe that the prevailing opinion is correct, that fermentation is probably the most common source of mischief at this critical time of the child's life in summer. In addition to the many causes of fermentation in individuals of mature years, children unfortunately are subjected to additional causes. Their organs of digestion anatomically and physiologically favor the production of fermentation more than those of adult life.

One thing I have found in the last few years to be of great value is to thoroughly cleanse the bowels by washing them out. I use different remedies for this purpose. Common salt, dissolved in water, is an elegant thing. Boracic acid is also good. I have cured many children by means of such treatment alone. The physician, however, should see that the food is properly prepared.

With reference to sterilized milk, the first time I saw it used was in 1876 in New York. I was called to see the patient of a prominent physician who had had an attack of cholera morbus, and he was preparing the food, and I asked him what his object was in using sterilized milk. He claimed that it was very satisfactory to himself, but it was not to me. I have used sterilized milk for the last fifteen years or more without any beneficial results whatever. Now, I generally have the nurse, or the mother of the child, scald the milk, pour in a little water, and dilute it when it is rich; then add Mellin's Food. In young childern it is one of the finest preparations we have. Another preparation I have used is Ridge's Food combined with milk. Malted milk acts well with some. By washing out the bowels thoroughly once a day, and with proper nourishment, such as I have mentioned, these patients generally get well without medicine. Many of you have doubtless heard about the powder I make for children. It is simple, and it is a good diet for them. I want to tell you what this powder is com-

posed of. It is nothing but subnitrate of bismuth, bicarbonate of soda, and aromatic prepared chalk, with Fairchild's Pepsin. This meets every indication where remedies are called for. You run no risk in giving it. I have not seen any bad results from it whatever. I have used these powders in cases of infantile diarrhea for years. They can be given every second hour, or every thirty minutes, if necessary, with perfect impunity, and they will check the most obstinate case of diarrhea.

I am sorry I did not hear the paper of Dr. Robinson. I am always anxious to benefit by the experience of my fellows, and more than glad to give them the results of my own observation and experiments.

Dr. P. R. Cortelyou, of Marietta: This is a very important subject, and I regret that the doctor did not have time to finish his paper. When we consider the large number of deaths that occur in infants of one or two years of age, anything that can be suggested which will help us in treating these cases is to be desired. I believe that the majority of these infantile troubles comes largely from improper and irregular feeding and want of cleanliness. These are the important points that must be looked after if we wish to attain success in the management of these cases. I agree with Dr. Bailey that the less medicine we give the better. The bowels should be thoroughly cleansed and washed out. We know that many mothers think that if they do not feed their infants often that they will starve, consequently they are fed every hour or two, and it is hard for the mothers to resist the feeding of their infants every few hours. If the stomach be kept at rest for a few hours, the bowels thoroughly washed out, and such treatment as Dr. Bailey has suggested carried out, these little patients will usually get well.

Dr. Robinson (closing the discussion): I have very little to add. I would like to impress upon the members the importance of irrigating the lower bowel with normal saline solution which is very beneficial. Of course in cases of cholera infantum the treatment, which I did not reach in my paper for lack of time, should be very much more active. However, cholera infantum is so comparatively rare that we are not apt to meet with it very often, but the majority of the severe cases that we are liable to call cholera infantum really belong to the fermentative class. High irrigation of the bowel and great care in the selection of proper food are the two essential things to look out for.

THE NECESSITY FOR THE USE OF THE MICROSCOPE IN THE DIAGNOSIS OF MALARIA.

E. E. MURPHY, M.D., Augusta, Ga.

It has always seemed to me a bit incongruous that in the south, the very home of malaria, so little attention should have been paid to the disease from the standpoint of the clinical microscopist. This can no doubt be explained in part by the fact that, until a very recent period, our southern medical colleges have given no adequate instruction in this special line of work; perhaps, also, the old adage "a prophet is never without honor save in his own country," may be truly paraphrased. Malaria is never appreciated as a clinical study in those regions where it most abounds.

It is not my purpose to consume your time with a description of the organisms of malaria or the history of their discovery. With such verbal descriptions you have doubtless been long familiar.

Most observers of to-day place the organisms among the sporozoa, and have generally accepted Mingazzini's classification of a group, Hæmosporidia, which includes organisms of man and the similar organisms found in birds.

Suffice it to say that there are at least three distinct and constant varieties of parasites; the parasite of tertian fever (Hæmamœba vivax, Grassi); the parasite of quartan fever (Hæmamœba malariæ, Grassi), and the parasite of estivo-autumnal fever (Hæmatozoon falciparum, Welch). The first two species mentioned give rise to intermittent, the last to remittent or continued types of fever.

There is probably no one disease about which there is a greater amount of confusion than malaria. In fact, we have come, through long years of habit, to apply the term malaria to all febrile processes, the nature of which is not clearly understood, and this in the face of the fact that we are dealing with a disease as sharply defined and with as typical pathologic changes as lobar pneumonia or pulmonary tuberculosis.

We have in the use of the microscope a practical, comparatively easy, and absolute method of determining whether or not any given case of intermittent or continued fever be malarial in its nature.

There are, however, a few prerequisites, without which no successful work can be accomplished. They are: first, a reliable microscope. Time was when it was considered necessary to have a German microscope in order to do accurate or satisfactory work. Now, at least one American house puts forth a product equal in every respect to the best German instruments. Such a microscope should be fitted with a good fine adjustment, substage condenser, iris diaphragm and 1-12 inch oil-immersion objective. One cannot do blood work without an oil-immersion lens.

Laveran, it is true, made his great discovery while working with a 1-6 inch dry objective; but good work or even average work cannot be done by beginners with such inadequate equipment.

Second. A reasonable familiarity with the appearance of fresh blood, normal or otherwise, is a *sine qua non.* Dr. W. S. Thayer, who has done the most creditable work on malaria of any man in America, lays down the dictum: "It is impossible to make reliable examinations for malarial organisms without being first familiar with the ordinary appearance of normal blood and the more common pathological changes." The recognition of full-grown, actively

motile, pigmented parasites is attended with no difficulty, but the differentiation of the small hyaline intra-corpuscular bodies from the various vacuolizations, crenations, and degenerative artifacts occurring in fresh blood after it has been withdrawn from the vessels for a little while can only be accomplished with certainty after considerable experience. This very difficulty led an enthusiastic physician in my own community, whose work with the microscope had been somewhat limited, to commit himself to the remarkable statement that, in a certain specimen of his he found hyaline bodies in every red corpuscle; a re-examination of the specimen showed that he had misinterpreted the crenation which always occurs in unfixed blood.

The parasites are best found and studied in preparations of fresh unstained blood, such as may be prepared at the bedside in a very few minutes. By using fresh preparations they retain their motility and consequently are the more easily seen; especially is this true of the small hyaline intra-corpuscular forms.

The technique of preparing these fresh specimens is quite simple; the essential points being quick work and absolutely clean slips and cover-glasses. Slips and covers are best cleaned by washing in a mixture of equal parts of alcohol and ether and polishing with a soft cloth. Upon this latter step, rubbing the cover-glasses until they are absolutely clean and dry, the making of a successful "spread" largely depends. Very thin cover-glasses at least 7-8 of an inch square should be used.

The drop of blood for examination may be obtained from any part, preferably from the lobe of the ear. The ear should be thoroughly cleaned; first with soap and water, then with alcohol and ether, and the lobe lightly punctured with a knife or spear-pointed lancet. The lobe should be held tense between the fingers and the blood should not

be squeezed out, but simply allowed to flow. The first few drops should be wiped away and then a clean cover-glass held in a pair of forceps should be brought into contact with the tip of the next drop of blood which appears, and immediately placed upon a clean slip. No pressure should be made upon the cover, as it will distort the corpuscles.

If now the slide and cover be perfectly clean and the drop of blood not too large, it will immediately spread out between them and the corpuscles may be studied lying side by side. If too large a drop of blood be taken the corpuscles will form rouleaux and the preparation be worthless.

It is much better to handle the covers with forceps, since they may stick to one's fingers, or the grease or moisture from the fingers distort the corpuscles or otherwise damage the specimen.

If for any reason it be inconvenient to make examinations of the fresh blood, satisfactory results may be obtained from the study of dried and stained preparations, smears, as they are called. These smears are prepared by taking two perfectly clean cover-glasses with forceps, touching one of them to rather a large drop of blood and quickly dropping it, blood-side down, upon the other. As soon as the blood shall have spread evenly between them they should be drawn apart with a steady, even motion and put aside to dry. Such preparations keep almost indefinitely. At the convenience of the investigator these smears may be fixed, stained and mounted for examination. One of the easiest and most effective methods being to drop the cover-glass into a watch-glass filled with 95% alcohol to which one drop of formalin has been added, where it should remain for a minute or longer. The preparation is then stained for about one minute in a saturated alcoholic solution of eosin, washed in water and stained for about three minutes in a concentrated aqueous solution of methylen blue, washed,

dried with bibulous paper, slightly heated over a Bunsen burner or spirit lamp to drive off any remaining moisture and mounted in canada balsam upon a glass slip.

By this method the malarial organism, the nuclei of the leucocytes, the nuclei of the red blood-corpuscles, if any such be present, and the blood plates are stained blue; the eosinophile granules and red blood-corpuscles red.

From what diseases can we rely upon the microscope to differentiate malaria? Septic conditions, tuberculosis, chills occurring after catheterization, typhoid and epidemic cerebro-spinal meningitis.

From the chills and fever of septic conditions, puerperal or otherwise, the microscope gives us a double standard of differentiation; the presence of the organism and the absence of leucocytosis in malaria and the absence of malarial organisms with a marked leucocytosis in sepsis.

Pulmonary tuberculosis is exceedingly apt to be confounded with malaria. A high authority says: "It is safe to say that the majority of cases of pulmonary tuberculosis occurring in malarious districts in this country are, at some time in their course, mistaken for malarial fever. This confusion occurs at the stage usually present at some time in the course of phthisis, where intermittent fever, often associated with chills, is present. The patient very frequently ascribes these symptoms to malarial fever, and with this diagnosis the physician but too frequently acquiesces."

The blood in tuberculosis with intermittent fever shows, generally, a distinct leucocytosis which is absent in malaria. In fact, an obvious leucocytosis is always to be interpreted as strong evidence against the existence of an uncomplicated malarial fever.

Estivo-autumnal fever is most commonly confused with typhoid, and the clinical pictures of the two often present striking similarities. In differentiating these two affections

we must depend upon the discovery of the hematozoa in malaria, and the existence of the Widal reaction in typhoid; since typhoid gives no leucocytosis and the changes in the leucocytes are practically identical in both.

Epidemic cerebro-spinal meningitis may be mistaken for algid or cerebral types of malaria, but here we would find, in true meningitis, a distinct leucocytosis and no malarial parasites in the blood, while the diplococcus intracellularis meningitis might be demonstrated in the fluid obtained by lumbar puncture.

Typho-malaria.—The term typho-malarial fever is one which is in very common use, and is intended to designate a fever which is supposed to be the result of a mixed infection with the specific organisms of the two diseases.

While such a mixed infection is not impossible, and a few undoubted cases have been recorded, the fact remains that the vast majority of cases of so-called typho-malarial fever will be found on examination to be either typhoid, pure and simple, or estivo-autumnal malaria.

The term typho-malaria, as used at present, is unscientific and has been discarded by all recent authorities.

In conclusion, I can but urge the necessity of using every means at our disposal to differentiate between these febrile processes which are at present so much confused; and certainly the light which intelligent microscopic investigation throws upon these subjects is too great to be thoughtlessly disregarded. It makes for greater exactness in diagnosis and hence for a more rational therapy, and tends towards establishing the practice of medicine upon a firmer scientific basis. Anything tending to bring about such results must inevitably redound to the final advantage of the practitioner, the profession at large, and, most of all, to the patient.

DISCUSSION ON THE PAPER OF DR. MURPHY.

Dr. Smith, of Atlanta: The value of the microscope depends entirely upon the technique of the examination. Without a careful technique a microscopical examination is entirely valueless. The mistakes mentioned by the author of the paper may occur to any one in his first examinations if he does not observe the precautions necessary in carrying out a careful and thorough technique. The slide and cover slip must be perfectly clean. If there is a particle of dust or a fabric of any kind between the slide and cover-slip, the blood-corpuscles will be the subject of crenation. Then, too, a good deal will depend upon the size of the drop of blood. If the drop is too large, the corpuscles will favor the formation of rouleaux. The corpuscles will not spread readily, etc. The value of the microscope in the diagnosis of malaria and other conditions is well recognized by all progressive physicians. There are a number of conditions which will produce chills, with rise of temperature, and I find that this is recognized by physicians in Atlanta, and although we have malaria, it is sufficient to make this use of the microscope of great value.

Dr. Oertel (closing the discussion for Dr. Murphey): I would like to say a few words on the subject which the paper suggests. Here in the South is the home of malaria in this country. Perhaps you do not have as much of it in Atlanta, but we have a great deal of it in Augusta and other sections of the South. I do not think we have studied malaria as scientifically in the South as they have done elsewhere. Thayer has done good work in this connection in the North, as well as some others, but in the South we have practically no original investigators. This subject is certainly of vital importance to the Southern community. We are all more or less interested in malaria, which is very prev-

alent in the South, and I may say very little understood, because, although we do know what the malaria parasite is and understand some of its forms, we do not know much definitely regarding certain points. There is much to be found out, and malaria is of vital interest to us and to our patients. I do not think too much can be said on this subject. I do not think too much can be said in the way of urging physicians in malarial districts to take an active interest in this subject, to make scientific investigations of their cases, and report their results.

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BRAIN TRAUMATISMS.

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No field of modern surgery offers so grand a promise of brilliant and daring operative work as the brain and its envelopes; and none other requires for its successful conduct a broader, deeper knowledge of the functional life of the region involved. The application of the discoveries of cerebral localization to diagnosis has done more to advance surgical intervention in these diseases and accidents than have the lessons of Lister and the aseptic refinement of his discoveries. Notwithstanding this, there is no region of the body in which the significance of symptoms is more delusive, nor in which the results of operation are more problematical. In traumatic lesions is this particularly true. (Except in the grosser lesions involving the motor areas particularly, localization of disturbed cerebral functions has generally been of but little practical value in indicating the point of the brain most importantly involved. The reasons for this are:

First. In the large majority of brain traumatisms multiple lesions exist, many special functions are involved, and conflicting symptoms appear.

Secondly. The general symptoms of cerebral shock (or concussion, if you will) and compression usually so cloak the symptoms pointing to special regions involved, that important lesions cannot be discovered.

Thirdly. The general depression common to various

lesions may be so prolonged that, when it is relieved, the symptoms pointing to special obtunded functions may be discovered too late to be of working value, secondary changes having destroyed the cells of the particular regions involved.

Lastly. While in some regions of the brain a cerebral function is circumscribed to a particular small seat, in other parts it is diffused over large areas; here compensation of the obstructed functions is early taken up by unaffected cells, the functions are restored, and the significant symptoms have disappeared before the general depression has passed off; partial loss of power of the part affected may later become permanent when secondary changes have destroyed the involved area. To make cerebral localizing symptoms of working value their study should begin with the beginning of the case, watching for their earliest manifestations in the midst of the symptoms of the general traumatism.

Too much attention has, heretofore, been devoted to the study of the incidents of brain traumatisms, the so-called concussion of the brain, the general compression symptoms, and the character and location of fractured bones of the skull. The time is now present in advanced surgical diagnosis when the location of special pressure symptoms of localized hemorrhages and edemas should be studied in the earliest hours of head injuries, and the irritation symptoms of localized brain lacerations looked for while symptoms of gross hemorrhage, depressed bone, or signs of fracture of the base of the skull exist. Why should the once important condition, concussion of the brain, occupy the surgeon's attention and divert his efforts from locating and relieving the more important lesions following traumatisms? This condition is now recognized as being nothing more nor less than surgical shock, and is identical with that condition

present when there is traumatism elsewhere in the body. The same class of symptoms and signs is produced by a blow over the heart or on the solar plexus. Men die of shock following blows in these regions, just as they die of concussion following traumatisms of the head, and the same absence of visible signs is found on autopsy as often exist after death in concussion. Cerebral concussion has been the death-warrant of many cases having remedial lesions. The term is a subterfuge of ignorance and is an excuse for timorous non-interference.

Again our ignorance of or confusion of ideas relative to the condition recognized as compression has often led us to overlook a pathological condition existing in the brain tissue, causing prolonged unconsciousness, and other grave symptoms, which we attribute to a depressed bone or an insignificant hemorrhage. We fail to see the signs of localized lacerations of the brain tissue, while relieving the general symptoms of compression by elevation of bone or turning out clots.

We lay too much stress on the presence of fracture of the skull in head injuries. Fracture, either of the vault or base, is *per se* of comparatively little moment, and yet how often do we hear and read of fractures of the skull causing unconsciousness, disorders of pulse and respiration, temperature variations, and other undoubted symptoms and signs of serious intracranial injuries. Depression, uncomplicated by cerebral lesion, is almost never a cause of early symptoms; compound fracture is only of danger in that it is an open avenue for infection, and the signs of fracture at the base are only of importance in that they show the location of important lesions of the contents of the skull.

It is with these conceptions of popular fallacies that the writer undertakes to present the following nine cases; and, together with a review of a table of one hundred and

twenty-six reported cases hastily gleaned from a limited number of medical periodicals, to show that in all serious traumatisms of the head there exist at some point in the brain or its membranes lesions of greater importance than is concussion, compression, or fractured bone. These are the mere incidents of the graver intracranial hemorrhages, contusions and lacerations of the brain or its membranes; either of which intracranial lesions is always present individually in severe head injuries, or in combination with each other.

The study of the symptomatology of cerebral traumatisms will soon convince one of the fact that the symptoms are dependent directly upon interference with functions, and can scarcely be attributed to the violence itself, to the concomitant lesion of the bony covering, to the ruptured blood-vessel or escaped blood, or to the contusion or laceration of the brain tissue *per se*. In other words, as Gowers says, "the symptoms depend immediately on the changes in the nervous elements and are secondary to what we call the disease." For instance, a blow on the head fractures the skull, producing a rupture of the middle meningeal artery, and causes a clot to press upon the motor area of the brain; the paralysis of the opposite side of the body is directly due to the changes in the nervous elements resulting from the arrest of the nutrition of the region pressed upon. The symptoms, therefore, are not directly dependent upon either the blow, the fracture, or the hemorrhage, but are the results of the localized anemia.

The symptoms of brain traumatisms are general and special. General symptoms are those common to all injuries or diseases of the brain—coma, convulsions, delirium, headache, vertigo, insomnia, mental irritability, and vomiting. They are due usually to the increase of the intra-

cranial contents by hemorrhage, serous effusion or pus. The special symptoms depend directly for their production upon irritation or destruction of particular parts of the brain; disturbance of motion, paralysis; disturbances of sensation, anesthesia; disorders of special senses, sight, hearing, etc.; defects of memory, and loss of speech, aphasia. Acute lesions produce symptoms severer than correspond with the damage actually done due to the attendant shock and physiological depression; hence the general symptoms are at first often misleading, but as time passes and restoration advances, the true estimate of the damage is more apparent and the exact seat may be discovered by the direct or focal symptoms. It is necessary then to be on the alert for the special direct symptoms, as they appear while the general symptoms are disappearing.

Lesions of bones have but little to do with the conditions existing within the skull; no more or no less than the injuries of the abdominal walls have to do with lesions of the abdominal viscera. The relation between a contused scalp, with a fracture of the skull, to the lacerated brain within, is analogous to the relation of a severe contused wound of the abdominal wall to the laceration of the contained viscera, following a blow or kick; it hides from view the greater injury. By far the most serious and dangerous brain traumatisms are those which occur either without fracture, or with fissured, or stellated solution of the continuity of the skull. In my table of one hundred and twenty-six cases, there are reported forty-nine cases of hemorrhages, lacerations and contusions without any fracture of the skull, and twenty-two cases of clots, lacerated, contused and disorganized brain matter, present with fissured fracture alone; while these lesions were present with all the other forms of fracture except in four cases. The

greatest mortality was in these two classes. In an experience of twenty years the writer recalls only one case of a compound depressed fracture without additional lesion of the brain matter or its membranes. In the table, as has just been said, there were two cases of uncomplicated depressed fractures, and two of uncomplicated compound depressed fractures. These uncomplicated fractures are by far the simplest cranial injuries that we have to contend with, if promptly recognized and properly treated. In proof of this, there was complete recovery in the four cases mentioned, without any early serious cerebral symptoms; they recovered without operation. Whether there was evidence of irritation later in life, the writer is unable to say, because the reports were only of the early condition.

The following is the report of the case recalled by the writer:

Case 1.—*Absence of brain lesion and symptoms; compound fracture with depression of bone. Trephining. Recovery.* S. C., adult negro laborer, was struck with an iron bar on the right parietal eminence, October 12th, 1889. He was stunned for a few minutes, but got up and walked a distance of one mile to my house. There was present a longitudinal cut of the scalp three inches long, exposing a depressed fracture. Temporary dressings were applied and he went home. Two hours later there were no signs of compression or of laceration of the brain, no unconsciousness, no paralysis, nor muscular twitching. The pupils were equally responsive to light. Pulse 80, respiration 28, temperature 99.6. The writer trephined and elevated the broken piece of bone, which was depressed half an inch at the edge. There was no clot and the brain pulsated freely in the trephine wound.

In two weeks, without any intervening symptoms, he was completely recovered.

A compound fracture, when complicated by cerebral injuries, bears the same relation to the lacerated brain or hemorrhagic effusion that a penetrating wound of the abdominal walls bears to an injured viscera. It is only a complication by being a possible avenue of infection, and when undepressed should receive the same treatment. In no other way does it add to the dangers of the case. In my table there are five cases of secondary infection, dependent upon the attendant compound injury of the bone. The next case presented bears out strongly this point in my argument.

Case 2.—*Laceration of the brain; escape of brain-tissue, without early symptoms; compound depressed fracture. Abscess tenth day. Elevation and drainage. Death.* S. J., white, cattle trader, aged fifty years, July 24th, 1894, in a drunken fight was struck on the left temporal region, with the jaws of a closed pocket-knife, inflicting a compound depressed fracture one inch above the external auditory canal, from which escaped some brain tissue and copius bleeding. No hemorrhage from ears or nose. Though drunk at the time, he did not lose consciousness.

Six hours later, when seen by the writer, he was still conscious, walking about the house; dull, however, from the whiskey which he continued to freely drink; speech slow, but intelligible. Urine and feces passed voluntarily. Pulse 70, respiration 17, temperature 98.4. The wound, *which had been probed by his physician*, and had no dressing applied, was still bleeding, but not so freely as immediately after the fight. He and his family declined to have any interference except an antiseptic dressing.

His condition remained unchanged, except a slight rise of temperature on the third day (99.4), a hesitancy of speech, and occasional "stupid spells" at night, until the tenth day.

August 2d, 7 p.m., he was seen for the third time. He had aphasia without other paralysis; was stupid, irritable, restless. Urine passed involuntarily. Left pupil contracted and stationary, right normal. Pulse 56, full, respiration 14, irregular, temperature 98. No history of a chill or convulsions, but an increasing restlessness and dullness of mind for the past three or four days. An operation was advised, but not permitted until the next afternoon, when he was profoundly unconscious.

The wound was enlarged and the bone elevated. There was an escape of some blood and about two drachms of pus. The wound was drained and an antiseptic dressing applied. He never fully regained consciousness; pulse rose to 120, respiration 32, temperature 102. He died twenty-four hours after the operation.

Hemorrhage and clot is the most frequent injury found where there are no fractures and in fissured or depressed fractures. It is the most frequent single intracranial injury that occurs, but it is more often found combined with lacerations or contusions. In the table referred to there are twenty-eight uncomplicated hemorrhages, that is, uncomplicated with laceration, or contusion without fracture; twenty-six cases of uncomplicated hemorrhage present with fracture; twelve cases of combined clots, lacerations and contusions existing without fracture, and twenty-two cases of combined laceration and hemorrhage present with fracture. This traumatic lesion of the head is the most easily diagnosticated injury we meet, and yet it was attended by a large fatality, owing to its concealed presence, before cerebral localization of functions made it a matter easily to be recognized, and before prompt aseptic operative treatment was instituted. Wiseman gives statistics of two hundred and fifty-seven cases; one hundred and forty-seven treated expectantly, of which one hundred and thirty-one

died; one hundred and ten operated upon, of which only thirty died. Of all classes in my appended table, fifty-eight recovered and twenty-five died. Very few died after operation. Modern treatment of wounds has materially reduced the mortality of this lesion.

That the presence of a fracture is of no moment either in diagnosis, prognosis or treatment of this lesion is apparent when it is known that it occurs as often, if not oftener, in the absence of fracture, and in very trivial as well as violent accidents; and that the two diagnostic points, the presence of a conscious interval, and dilatation of the pupil when the clot is in the middle fossa of the corresponding side, are oftener present in the absence of fracture. The presence of hemiplegia, paraplegia and rigidity occur equally with or without fracture.

The more important point is the early recognition of the presence of an intracranial complication—laceration or contusion—which modifies the lesion and its diagnosis, and which has so frequently caused the confusion between this lesion and the so-called concussion and compression of the brain.

The most important point, however, after ascertaining the possible presence of hemorrhage, is the location of the clot and ascertaining the involved vessel. The most frequent vessel involved in these hemorrhages is the middle meningeal artery; the sinuses are sometimes involved where there is violent injury to the bone. The most frequent seat of the clot is between the skull and the dura. Subdural hemorrhages, however, most frequently occur in complicated cases. Cortical hemorrhages complicate laceration of the brain.

Illustrating the comparative unimportance of a comminuted fracture of the skull in the presence of an epidural hemorrhage, case third is reported. Unfortunately the in-

terval of consciousness in this case was not known when the patient was first seen, although he subsequently recalled events which indicated that it had been present.

Case 3.—*Epidural hemorrhage; comminuted fracture of the right side of the skull. Evacuation of clot. Drainage. Recovery.* S. D., negro tramp, aged twenty-one years, was found, February 19, 1898, on the right of way of a railroad near Macon, in an unconscious condition. From the records of the railroad offices, the accident was supposed to have occurred about 3 a.m.; at 8 a.m. he was brought into the hospital. His right clavicle was broken; he was bruised about the body; the right eye bulged slightly; the right side of the head was flattened and the overlaying scalp was boggy but not torn. There was no hemorrhage from the ears or nose. He was semi-comatose, would answer incoherently, and was constantly tossing. The left leg was alone paralyzed; the left arm feebly moved, and the face was twitching. Pupils equally dilated and responsive; the right eye turned up and to the right. Pulse 74, respiration 26, labored, temperature 98. Vomited once, and his urine had to be drawn.

At 9 a.m. his scalp was opened. Periosteum had been detached from the skull, and there was considerable blood under the scalp. The frontal, temporal and parietal bones were greatly broken up; one piece, one and a half by two and a half inches, involving the parietal, was removed; the other parts were raised. A clot found between the skull and dura was removed. The scalp was sewed up, a gauze drain being left in the most dependent point of the incision. Three hours later he told his name and residence and could move the left leg. For the next three days he rapidly improved, although he had to be catheterized and had an evening temperature of one hundred degrees. The fourth day he recalled the events of the night of the accident suffi-

ciently clearly to indicate that there had been an interval of consciousness. On the twenty-first day he was discharged, completely recovered.

Laceration and contusion of the brain are by far the most important injuries in these traumatisms. These grosser lesions of the brain are identical with contusions and lacerations elsewhere in the body, and the clinical history corresponds with what we should naturally expect from a lesion of such delicate tissue and specialized functions. They are the lesions that give rise to the most confusion, and upon which are so often based the diagnosis "concussion and compression of the brain." Contusion exists to some extent in all head injuries. As an isolated lesion, it is infrequent. Lacerations are less frequent than contusions, and rarely exist alone uncombined. These lesions exist whether the skull is fractured or not, and apparently the most marked depression and symptoms occur in those cases unattended by destructive lesions of the bones. In fact, it has seemed to the writer that in those cases where there was extensive compound fracture of bone and laceration of the membranes with escape of brain matter, there was a better outlook for the final recovery of the patient. In the table there were only nine cases of uncomplicated laceration and contusion, twenty-five cases of laceration attended by fracture, and twenty-two cases of clots and laceration present with fracture.

The symptoms of these lesions, continuous unconsciousness, delirium, headache, irritability, vertigo, convulsions, loss of sphincteric control, bilateral inequalities of pulse, and bilateral irregularities of temperature, for a long time considered concussion and compression symptoms, dependent upon the so-called vibratory action of the encephalic nerve cells and cerebro-spinal fluids, occur independently of fracture, and can in no way be attributed to any form

of lesion of the skull. The destruction of the functions of the special senses, sight, hearing, speech and smell, so frequently present in these lesions, and valuable as focal symptoms, occur independently of lesions of the bone. Depressed and compound fractures have no influence whatever on the special direct symptomatology of these lesions.

The fourth case is introduced as a fair representative of severe contusion of the brain, complicated by laceration of the longitudinal sinus, occurring in the presence of a severe bone lesion which had no direct bearing on the symptomatology.

Case 4.—*Severe contusion of the brain, and laceration of the longitudinal sinus; compound depressed fracture. Elevation. Death.* D. J., white, aged thirteen years, was kicked, September 27, 1891, on the vertex by a horse. He was taken up unconscious and remained so for three hours. He then could answer questions intelligibly for a short time, but lapsed into a semi-comatose condition. Delirium and irritability were soon present.

Twenty-four hours later, when the writer saw him, there was a constant slow oozing of blood from an irregular scalp wound on top of the head, through which a depressed angle of bone could be felt to the right of the sagittal suture. No hemorrhage from the ear or nose, nor any ecchymosis about the eyes. He would answer irritably when urged to do so, and was generally stupid. The left foot and leg were paralyzed; the left arm and face twitching. Pupils equally contracted. Pulse feeble, 120, respiration 26, sighing, temperature normal. He had vomited several times and passed urine and feces involuntarily.

The scalp was raised and the depressed pieces of the skull, covering an area two by three inches, were elevated. While removing an irregular piece of bone, which projected below the level of the sagittal suture, a tremendous venous hemor-

rhage took place, which was with difficulty arrested by packing the wound with gauze. The longitudinal sinus had been irregularly torn. The dura was also torn at the same point, and, thinking the paralysis was possibly due to a subdural clot, this wound was enlarged. No clot was present, but the cortex of the brain was badly contused and softened. The dura was closed, a drain of gauze was brought out of the lower angle of the scalp, which was sewed up, and aseptic dressings applied.

The lad never regained consciousness after the operation, and eighteen hours later died.

Case fifth is introduced illustrating laceration of the brain, complicated by epidural hemorrhage, present with fracture of the skull.

Case 5.—*Laceration of the brain and epidural hemorrhage, with extensive fracture of the vertex and base of the skull. Trephining. Death.* J. S., adult negro, track hand, fell, October 15, 1890, under a crank car, the axle striking his head. Unconscious at once. Was brought to Macon and seen by the writer two hours later. There was hemorrhage from the left ear and nose, left eye bulged out, scalp edematous; bones under scalp felt irregularly displaced. Still unconscious; right arm and leg partially paralyzed, left moving in clonic spasms; said to have had two convulsions on the way up to the city. Pupils dilated, irresponsive to light. Pulse 52, hard, irregular; respiration 14, irregular and stertorous; temperature 101. Involuntary passage of urine.

Scalp opened and the frontal, parietal, and occipital bones found comminuted. The trephine was applied to raise the bone. A small clot was found over the left motor area and removed. The dura was torn over the frontal lobe, and some brain matter exuded through the rent. Rent in dura closed partially and scalp closed, with gauze drainage.

October 16th. Pulse 88 to 116, respiration 40 to 44, temperature 100 to 101.4. Stuporous, but answers questions connectedly; moves right arm and leg freely, muscular twitching still present; irritable and restless; pupils contracted but respond; bladder and bowels act involuntarily; expectorates bloody mucus.

October 17th. Mind rational; muscular twitching relieved; intense headache; recovered control of urine and feces. Pulse 98, respiration 26, temperature 100.

October 18th. Delirious, then unconscious; twisting of face and arms. Pulse 144, respiration 40, temperature rapidly rising, 104.2 in the evening.

October 19th. Coma, temperature 105; death 3 a.m.

The next two cases are of uncomplicated contusion and laceration, and well illustrate the history of such lesions.

Case 6.—*Probable contusion of the brain, without detectable fracture of the skull. Recovery.* T. S., negro brakeman, age thirty-one years, was struck, February 22, 1899, on the back of the head by an overhead bridge, and precipitated on the ground. There was no evidence of fracture of the skull discovered through the scalp; the scalp was severely bruised and swollen. There was no hemorrhage from the nose or ears. He was completely insensible from the first and remained so for several hours. No paralysis was present. In twenty-four hours he was sent to Macon. He could then walk with assisstance, but held his head rigidly erect; face and arms at times twitched. Had vertigo, intense headache; was dull and restless. Pupils normal; vision unaffected. Pulse 86, respiration 28, temperature, right axilla 100, left 99.6. Vomited on the way home; urine and feces controlled.

March 1. Mental dullness increased; at times extremely irritable, or again emotional. Pulse 90, respiration 26; temperature, right axilla 99.2, left 99 at morning visit, but at the evening visit it was 98.7 in both axilla.

March 2. Delirious; uncontrollable at times; would get out of bed and scream with pain in the back of the head. Was sent to the hospital, where he remained four days; delirious at night, clear mentally during the day, but restless, irritable and emotional; persistent occipital headache; vision perfect, pulse varying between 84 and 96, respiration 16 to 26, temperature 98.4 to 99; begged to go home so earnestly that he was allowed to do so.

During the next three days there was some improvement in mental condition, but his muscular motions were slow and stiff.

March 9. Hard to control, irritable, pugnacious; occipital pain and vertigo constantly present; slow, stiff reeling gait.

March 12. Almost complete imbecility; cries and mopes about the house and yard; headache; slight irregular rise in temperature.

From this date there was slow improvement; mind acting slowly, muscular action stiff and difficult.

May 1. Recovery complete.

Case 7. *Probable laceration of the brain; fracture of the frontal sinus. Recovery.* S. W., negro brakeman, twenty-five years of age, July 6, 1899, was missed from his train a few minutes after leaving a meeting point, and the section-master notified to look for him. He was found between the tracks at the meeting point, in an unconscious condition and bleeding freely from a wound of the right frontal sinus, which was crushed in by some irregular body. There was hemorrhage from the nose and ecchymosis of the right eyelids. When admitted to the hospital sixteen hours after the accident, unconsciousness was still complete; no paralysis was present, but there was jactitation of the limbs. Pupils contracted, but responsive. Pulse 72, respiration 24, temperature 100. Urine involuntary.

The wound was enlarged without anesthesia, and it was

ascertained that there was no fracture of the inner walls of the frontal sinus.

Unconsciousness gradually passed off in twenty-four hours, giving way to irritability and mental dullness; occasional twitching of the face; urinary incontinence still present. Temperature 100, respiration 19, pulse 54. There was a marked difference in the volume of the two radial pulses, that of the left being feeble, while the right was strong and full.

The following nine days his mental condition was variable, having dullness, volubility, hallucinations and persistent frontal headache. The temperature varied between 99 and 100; urinary control returned after the third day. He could not recall the incidents of the accident until the third week. He said he remembered the engine of the passing train catching his coat and his falling on a cross-tie.

Recovery was complete in four weeks.

We take up next the question of injuries of the brain at the base, that class of cases which is misnamed "fractures at the base." They are injuries of the brain proper—hemorrhage, contusion and laceration—the evidences of fracture being of value only as indicating the location of the brain injury. These lesions are most often accompanied by evidences of a high degree of edema and increase of the intracranial pressure; coma complete, without evidences of general paralysis, symptoms of graver lesions than bone fracture and of deeper significance.

Fractures in this region are usually linear or fissured, and extend to the base from the point of impact of the vulnerating force on the vertex or other portions of the skull, reaching the base by the shortest anatomical route, traversing the natural fissures in their course. The signs of these fractures are ecchymosis about the mastoid, occipi-

tal region, eyelids and conjunctiva; hemorrhage from the ears, nose and mouth, followed by escape of cerebro-spinal fluid; paralysis of a single nerve at the base may occur when the foramen is fractured and the nerve is lacerated by the bone. Escape of cerebro-spinal fluid is not, however, always pathognomonic of fracture. It may escape through a natural foramen leading from the inside of the skull, if the membranes have been lacerated without a fracture. A great bulk of the hemorrhage always comes from the vessel of the arachnopial membrane and the temporosphenoidal fissure, passing along the foramen of the auditory nerve in the petrous portion of the bone.

The focal symptoms of injury at the base are symptoms of irritation or destruction of the basalar regions of the brain and of the cranial nerves as they traverse the cerebral cavity to their exits. There may be loss of sense of smell, one-sided blindness, half vision, ptosis, dilated pupil, external strabismus, loss of accommodation, paralysis of movement of the eyeball, unilateral paralysis of sensation of the face, and one-sided paralysis of the face. If it is a simple irritative lesion, the paralyses pass away; if the nerves are lacerated, it is permanent. The facial nerve may be paralyzed in the aqueduct of Fallopius by indirect fracture, the injury being permanent, the palate escaping. If the auditory nerve is permanently affected, the petrous bone is broken across, or it may be due to an unabsorbed hemorrhage into the tympanic cavity, without fracture of the base.

With these exceptions the bone lesions have no influence on the focal signs and symptoms, and they are present independently of the bone injury.

The fatality of these cases is due directly to the injury of the brain, and is most commonly due to infection traveling through the new opening in the bone. The fatality in pre-

antiseptic days was greatly in excess of that at the present time, and, excluding the extra risk of sepsis, the prognosis is on the whole better when there is escape of cerebro-spinal fluid than without it; the intracranial pressure being relieved by the continuous drain of the fluid. Of the one hundred and twenty-six cases in the table, there were thirteen basal injuries, with nine recoveries and four deaths. Case sixty of the table is a good illustration of injury of the base of the brain, together with a permanent facial paralysis due to a fracture of the Fallopian canal. The following case also illustrates the permanent paralysis of the facial nerve, dependent upon an indirect fracture of the external auditory canal, the facial nerve being involved internally to the chorda tympani in the aqueductus Fallopii; the temporary paralysis of other nerves was due to intracranial injuries.

Case 8.—*Laceration or contusion of the brain; fracture of base of the skull. Recovery.* Wm. M., sailor, adult, white, December 15, 1881, fell fifteen feet on his right ear and mastoid process. When admitted to the Jefferson Medical College Hospital, at which institution the writer was then an interne, four hours after the accident, there were puffiness of scalp about the ear and hemorrhage from the right ear, with several hours later sub-conjunctival and orbital extravasation, and ecchymosis over the right mastoid bone. He was unconscious immediately after the injury and remained so twenty-four hours. Pupils were contracted, but responded to light; eyes directed up and to the right; pulse 66, full, respiration 26, temperature 101, five hours after the accident.

Twenty-four hours later. Coma passed into stupor; could answer questions when aroused; refused to swallow; paralysis of the right side of the face, and right-sided ptosis; anesthesia of right side of face; muscular twitching of

the upper limbs, irritable when aroused; urine and feces passed involuntarily; pulse 72, respiration 22, temperature had declined from 102.6, of the previous night, to 99.

In four days the anesthesia of the face had passed, except of the eyeball; facial paralysis and ptosis were still present; persistent pain in the right side of the head; speech was hesitating; the mind was clear, but he was irritable and emotional, crying without any excitement. The control of the bowels and bladder had returned. Pulse and respiration were normal, but the temperature remained 99 to 99.4.

He gradually recovered in two months; the paralysis of the right side of the face, right side palatine muscles, and ptosis persisted. The sense of taste was lost on the right side of the tongue. Right-sided headache, and emotional disturbances were still present.

The next case presents a group of focal symptoms of laceration of the brain at the base and a late complication due to morphological changes of a hemorrhagic deposit in a lacerated region.

Case 9.—*Laceration of the brain, traumatic cyst of the third frontal convolution; fissured fracture of the frontal and temporal bones, extending to the base. Late trephining and evacuation. Recovery incomplete.* Mrs. E. J. C., December 2, 1899, was thrown from her trap and taken up immediately, unconscious. The right humerus was broken near the head of the bone. There was also a small lacerated wound at the external angle of the right supra-orbital process, and limited contusion of the same region. The right eyeball was protruding and turned up and outwards. Ecchymosis of the right conjunctiva; and hemorrhage in the orbital fossa, from the nose, and slightly from the left ear. The left arm and both legs moved freely; muscular twitching of the face and arms; apparent perception of local irritation; involuntary urination; groaning and stertor;

pupils dilated, but responsive; pulse 78, irregular and intermittent, respiration 28, temperature 99.4, three hours after the accident. Vomited decomposed blood six hours after the injury.

On the sixth day the writer was first asked to see her. The unconsciousness, restlessness, involuntary evacuations, pulse, respiration and temperature were unchanged. On this day it was found that she had loss of sensation of the right conjunctiva and side of face, with a squint and ptosis of the right eye. The discharge from the ear had ceased the fourth day.

7th day. Paralysis of the right side of the face; consciousness returning; she could answer "yes," and recognize friends; could move some in bed. Involuntary fecal and urinary actions persisted; pupils normal, pulse 58 to 72, respiration 16 to 20, temperature 98 to 99.6.

From the eighth to the thirty-ninth day her mental and physical condition was very variable, either wildly delirious, restless, or quietly sleeping and having a few moments of lucidity. Took liquid foods mechanically; gradual emaciation. The anesthesia, facial paralysis and ptosis had gradually passed off. Involuntary fecal and urinary action persisted, except a few times near the end of this interval. The temperature was usually subnormal and rarely more than 99.5. The advisability of operative measures was fully and frequently discussed.

At 9 p.m. of the 39th day she had a chill with a temperature of 103, pulse 120, extremely weak and irregular, respiration 44. Cyanosis and great distress attended this condition; pupils widely dilated.

The next day the writer, not having seen her for several days, discovered a tender spot, just over and in front of the right ear and in an area of pre-existing bogginess of the scalp. The temperature had gradually declined to 99.2,

with an attendant reduction of the pulse and respiration. The usual variableness of her mental condition was present.

There was a second sudden rise of the temperature (101.2), pulse (100), and respiration (28) in the early morning of the 43d day, with extreme restlessness, difficult deglutition, and labored breathing. In the evening she was profoundly unconscious; the nurse thought she was dying during the night. An operation was advised and Dr. McRae, of Atlanta, came down in consultation.

January 14. Dr. McRae and the writer, assisted by Dr. Derry and the attending physician, Dr. Holt, trephined the skull over the right ear in the area of tenderness above mentioned. The skin and periosteum being turned down a fissured fracture was found outlined across the frontal and temporal bones, starting in the region of the external angle of the supra-orbital ridge, and passing backwards and downwards behind the external auditory canal. The dura being exposed, it did not pulsate. The dura was then incised about one inch above and to the front of the auditory canal; no subdural clot was found. The brain beneath the incised wound was punctured with a tenotome, and at about an eighth of an inch depth the knife passed into a cavity. The groove director followed the tenotome, and there was a flow of about three drachms of clear liquid from this cavity. The brain tissue, which was of rather pale yellow color, collapsed after the escape of the fluid; the brain then began to pulsate underneath the dura. The incision in the dura was closed with catgut, the scalp wound closed, an epidural drain of gauze being placed in the lower angle of the wound; the usual antiseptic dressing was applied, and the patient returned to bed.

After the operation the pulse, respiration and temperature rose and continued high for six or seven days. Unconsciousness was complete for the same interval, while the

pupils were not materially affected. A difference between the two axillary temperatures began the first day after the operation and gradually widened until the early morning of the third day, then gradually returned to equal registration on the fourth day. The right axillary temperature was the higher, and the widest difference was 1.2 degrees. The rectal temperature was higher than the highest axillary temperature. If there was any axillary inequality in the first days of the brain injury it was not recorded in the notes of the case.

Complete primary union followed the operation, with a continuous improvement in the physical condition of the patient, but no material benefits to her mental life resulted. She is now in a condition of chronic dementia.*

Sphincteric loss was marked in this case, and the difference in the axillary temperature is the first that the writer has observed after operative procedure, but illustrates the fact that any irritation of the brain may bring about this condition.

This case is one of remarkable interest, presenting as it does so many of the symptoms due to injury at the base of the brain, so clearly locating the points of injury and the unfortunate results of failure to relieve early injury. The writer believes that if as soon as the basal symptoms appeared, an opening had been made and drainage allowed, much, if not all of her trouble would have been relieved. The secondary changes, cystic degeneration, softening and nerve cell destruction may possibly have been prevented.

It is the writer's conviction that more can be done in these cases by early interference than has been done up to the present time. Drainage of the epidural region, or even

*Since the above was written the patient has been again trephined in Philadelphia by Dr. W. W. Keen, and softening of the right frontal lobe demonstrated.

of the arachnopial cavities would relieve the intracranial pressure and restore the nutrition of the compressed brain. And further, the removal of disorganized brain tissue may be necessary. This is forcibly impressed upon the mind by the records of three cases in the table, where there was a free opening and escape of contused brain matter, blood-clots and cerebro-spinal fluid, with recovery.

Cranial openings should not be different from an opening in abdominal surgery under aseptic rules. In case 9 the patient was relieved of impending death late in the disease, by cranial opening, evacuation of the cyst and drainage.

Nor is the writer alone in the belief that such procedure may be of value. Stimson, Markoe, Fisk and McCosh report cases (Annals of Surgery, March, 1899), and believe that there is a future for this kind of work. For diagnostic reasons the cranial cavity should be entered as readily as is the abdomen. The lessons of drainage in laceration of the brain, with hemorrhage, attended by extensive compound fractures, should not be overlooked. In cases of slight rise of temperature, prolonged unconsciousness, restlessness, wild delirium and focal symptoms, the question of operative interference arises. If, after a severe blow, there be localized contusion and congestion, with a sub-arachnoid serous exudation, the fluid being imprisoned and symptoms of focal paralysis follow, relief to such conditions may be brought about by free incision and drainage, as it is elsewhere in the body by the same measures.

DISCUSSION ON THE PAPER OF DR. WILLIAMS.

Dr. William P. Nicolson, of Atlanta: I am sorry that Dr. Williams did not get into the technique of the treatment in these cases. The most important thing in brain injuries is early and radical surgical intervention. A somewhat large experience has convinced me that the profession

should be educated that surgical interference in brain injuries and opening the skull is a harmless operation *per se*, and it practically adds no danger to the patient in the majority of cases. I do not believe that a compound fracture of the skull should be treated conservatively when the bone is depressed to any extent, no matter whether the patient manifests any symptoms or not, because I have repeatedly operated, and so have others, for epilepsy, insanity, and various troubles that have resulted from the continued pressure of the bone and of injury to the brain afterward. Some forms of brain lesion should always be subjected to operation, especially stab wounds of the brain. It was my fortune to see two cases of stab wounds of the brain, both of them terminating fatally. One case I saw forty-eight hours after the injury was sustained. A large blood-clot was found the size of a large hen's ege; sepsis occurred from which the patient died. All cases of compound fracture of the skull, whether they produce any symptoms or not, absolutely and imperatively demand operation, and any case of injury of the brain, showing any degree of localization of the blood-clot which may be under the broken or depressed fragment, should always have the skull opened and the brain investigated. No patient is practically hurt by it. The opening of the skull under proper surgical precautions is free from danger, and the brain can be carefully investigated by the finger without causing any serions difficulty or trouble to the patient.

Dr. A. C. Davidson, of Sharon: I was very much interested in Dr. Williams's paper, because I have had occasion within the last two years to treat compound fractures of the skull. One patient was a boy, ten years of age, who had sustained a crushing injury of the head. The boy was practically dead for fifty minutes. The scalp was carefully pre-

pared, I trephined the skull and took out a number of spiculæ, after after which the wound was closed and dressed in the usual manner. A short time after the operation the boy was doing well, and I believe has recovered.

The second case I saw last May, the patient being a negro woman who was working in a cotton field and was struck over the head with a broom, the cut being about inch an and a half long. The accident occurred on Wednesday. I was called to see her in consultation. The following Monday she was paralyzed in the arm and part of the face. I incised the scalp and trephined the skull, removing five pieces of bone, some of them about the size of a quarter of a dollar and irregular in shape. The wound was carefully washed out and dressed in the usual manner, and at the end of six weeks she resumed her work. I simply report these two cases to confirm what the essayist has said with regard to the treatment of these wounds.

Dr. C. D. Hurt, of Atlanta: It has been my misfortune to encounter a number of injuries of the skull and brain, and I think that the position taken by Dr. Williams in regard to a simple undepressed fracture is entirely correct, that is, that no interference, so far as trephining or opening the skull is concerned, is indicated unless there are symptoms indicative of the existence of a blood-clot, depression of the fragments from serum or other causes. We all know it would be impossible to have depression of bone unless it is displaced. If we suspect compression in these injuries, they must result either in blood-clot or the outpouring of serum from the serous membranes covering the brain; therefore, unless we operate for the removal of the blood-clot, or for symptoms indicative of it, I do not think it is really necessary to interfere surgically in a simple fracture of the skull.

I recall a case of fracture of the left parietal bone, the patient being struck with a wagon spoke by another man.

The symptoms were marked. The man had convulsions and coma following the convulsions. He was ill for four or five weeks, was expected to die, and yet he made a good recovery. This was one and a half years ago. I suspected disturbance at the base of the brain, which complicated the symptom. In fracture of the skull, unless there is displacement of bone, it is well in every such injury, where we can get a history of the implement used in causing the injury, that we eliminate the possible depression of a spicula of bone. A rough-edged instrument may cause the compression of small spiculæ, thereby producing symptoms which demand the removal of the depressed portion of the skull. We know that the brain is susceptible of great disturbance, and yet recovery finally takes place. It is the disturbance that goes to the brain, in its blood-vessels, or in its meninges, in cases of fracture without depression, and not the simple fact of the existence of a fracture. I have never found this disturbance very great, in cases of simple fracture, at least sufficient to interfere with the bone. In most cases where I had suspected the presence of a blood-clot, not too great, absorption has readily taken place. I had a man in the hospital for two weeks, who was unconscious for that length of time. He had depression of bone. I called in consultation to see him Dr. Elkin. We decided on operation and, if necessary, to elevate the depressed portion of bone. This case showed the tolerance of the brain in these cases of depression. His wife persistently refused to allow an operation to be done. The man recovered his intellect, but not to the full extent. He performed his daily duties as a laborer, while prior to the accident he held a position which required the exercise of his mental faculties. In this case I believe the elevation of the depressed fragment of bone would be beneficial, but as his wife is determined that an operation shall not be undertaken, he is beyond the best point of full

recovery. In his present condition he will never be able to do the work which he did before he received the injury. Brain tolerance changes the condition very much, and we never know in which case this tolerance will show up. While it is advisable in cases in which there is a large blood-clot or a tendency to abscess to open the skull and relieve the condition, there are many conditions of temporary compression growing out of a temporary discharge of serum or of the presence of a small blood-clot, so that the patient may entirely recover, and it may be unnecessary to operate for an undepressed fracture of the skull.

Dr. Williams (closing the discussion): I have written this paper because I have seen several cases in which there was considerable injury to the brain substance with little or no injury externally. When you are called to see these cases you cannot say that this man or that woman has simply a fracture of the skull or "concussion of the brain," for after thoroughly investigating the cases you will find, in addition to the fracture, that there is laceration of the brain tissue in a large percentage. I venture to say that, in nine out of ten cases, where blows are inflicted on the head, there is some area of the brain which is more or less injured. A man died in Macon the other day of "concussion of the brain" twenty-four hours after his fall, after a period of semi-consciousness. I did not see the case, but read of it in the newspaper. He had a hemorrhage from the middle meningeal artery without a shadow of a doubt. It is in such cases, with little evidence of injury externally, that we have these serious troubles. Case number nine of my paper was thrown from her carriage and picked up unconscious with only a slight external wound. She remained unconscious for nine days. The side of her face was paralyzed; she had ptosis; she had anesthesia, and with it delirium, lasting for weeks. She was then operated on and a cyst was found in

the third frontal convolution, containing a blood-clot undergoing cystic degeneration, the result of a laceration received when she fell. The question of concussion and compression plays an important part in these cases; it is the condition of the brain substance which is the all-important point. I do not wish to convey the impression by what I have said in my paper that I would not resort to surgical interference in cases of compound fracture, or in depressed fractures, because I would certainly do so, for the reason that sooner or later in the former there would undoubtedly be secondary infection, while the latter are attended with considerable future dangers. In depressed fractures it is not the question whether the bone is fractured or presses on the brain substance which is of importance, for we cannot get sufficient pressure ordinarily from the depressed portion of bone to interfere with the circulation in the brain. This is a rather bold statement to make, but I believe that the depression amounts to litle unless there is a laceration, contusion, or hemorrhage beneath it.

In the case mentioned by Dr. Hurt, I am sure that the man's brain was interfered with by compression, but there was, at the same time, laceration at the base of the frontal lobe of greater gravity. It is here where we get most of our lacerations, just opposite to where the blow falls, in the centers controlling the intellect more than elsewhere.

SOME OBSERVATIONS ON THE PROGNOSIS AND TREATMENT OF SO-CALLED CATARRHAL DEAFNESS.

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It seems superfluous in me to try and discuss the subject of deafness when our medical journals and programs of annual and monthly meetings teem with so many aural dissertations. And on the other hand, I must confess that I bring before you no startling discovery nor miraculous cure, nor will I even present any rare pathological specimen. My only excuse for trespassing upon your time with such a hackneyed subject is purely from the fact that my clinical experience has impressed upon me certain truths which cannot always be found in text-books and which have not been given that degree of prominence which they deserve. There is probably no portion of medicine which opens up a broader or more inviting field to the quack and charlatan than is embraced under the dual word "catarrhal deafness." Deaf people are like drowning men, and a straw to such is always filled with restoring grace. Barnum never uttered a greater truth than when he said, "The American people like to be humbugged," and I have often thought that he must have had in his mind deaf American people.

Deafness is a general term and but signifies a specific condition of the aural apparatus without designating the par-

ticular portion of the apparatus which is involved. Certain pathological conditions existing in any of three divisions of the ear—external, middle and internal—will produce deafness, and the question of diagnosis and consequent prognosis rests upon which portion is involved.

Routine or problematical treatment of any pathologic condition should not be a habit possessed by any scientific physician. Because text-books lay down certain treatments in certain diseases is no reason why the physician should always follow such teachings. Cause and effect are closely correlated and the successful physician is he who studies closely the relationship of every accompanying sign and symptom. You may look around and note the successful consultant, and you will find a man who studies minutely every case just as if he had never seen a similar one before. This principle, enunciated in general, is still more applicable to him who undertakes to treat successfully aural diseases. Much advancement has been made in the last few years in aural surgery, especially that of the mastoid, but with this exception we have not made any wonderful strides since Wilde and Toynbee published their work some fifty years ago. This statement will probably be strenuously denied by many specialists of the present day, but such is made after a close perusal of an old book on "Diseases of the Ear," by Joseph Toynbee, F.R.S., published in London in 1860. With the exception of better illustrations as exemplified by the printer's art and leaving out the operative treatment of the mastoid and the failure to recognize adenoid vegetations as a causal factor in middle troubles, this old book of Mr. Toynbee's is as clear an exposition of aural diseases as can be found in any of the text-books of the present day. It is a good deal clearer exposition of the subject than the majority of the modern text-books in that the author gives results obtained from personal investiga-

tion and experience. The plates in this book of anatomic and pathologic ear specimens are all taken from his own dissections and every portion of the temporal bone is beautifully represented. It is a pleasure and a profit to pursue the pages of this old book, and in doing so I have gained much valuable information. The arrangements and classification are different from the more modern works, and yet there is a logical sequence which appeals to the student. No subject is discussed without its being followed by illustrative cases from practice, a happy feature of any text-book, and it is surprising to find the treatment therein contained quite similar to much that is used to-day.

During the last few years there has been too much of a tendency, especially among specialists, to publish text-books and manuals, showing their own name on the title page, when frequently and in fact most often the whole work is nothing more than a compilation of the subject from older authors. I have never thought that such enhances the reputation of its author and it adds nothing to our present knowledge.

Deafness due to some pathologic lesion of the external ear, such as obstructions, is as a rule easily recognized by the experienced otologist and likewise easily remedied. It is in diseased conditions of the middle and internal ear that deafness arising therefrom gives us the most trouble.

Physiological experiments and anatomic dissections must as yet be the chief factors in furnishing us with knowledge concerning the internal ear and a basis upon which to form a diagnosis when that organ is diseased. It is true that comparative tests, as, for instance, with the tuning-forks, have given us much valuable information in reaching a diagnosis, but the experienced clinician will have to admit that even these tests are by no means positive. Leaving out of consideration the treatment of internal ear lesions as a

cause of deafness, for when such has been recognized during life the treatment is quite uniform among otologists, we wish to consider for a few moments the pathologic conditions of the middle ear which produce this symptom and what benefit we may expect from the various methods which have been proposed for its remedy. We would make a still further limitation by considering the deafness dependent upon a dry condition of the middle ear in contradistinction to that produced from otorrhea. In other words we will consider the deafness dependent upon the so-called "dry-catarrh" of the middle ear.

Unless we recognize that even this dry catarrh presents two entirely different histo-pathologic conditions, our treatment can never be definite and it will be fortuitous should success attend our endeavors. In this day of quickly made specialists the public is made to suffer through ignorance, for they treat all cases alike, being ignorant of the very first principles which are needed for the recognition of these pathologic states.

> **" A primrose by the river's brim,**
> **A yellow primrose was to him, and nothing more."**

It is a plea for a more minute study of every case of deafness why this paper is brought before you to-day, and to deprecate the habit of having a routine treatment for all cases. Bear in mind that I am not considering deafness dependent on otorrhea, but those cases where the drum is intact and the middle ear is not open to ocular inspection.

Clinical experience has taught me that prognosis in these cases is dependent upon:

1. Age of the patient.
2. The pathologic condition of the nose and nasopharynx.
3. Duration of the deafness.
4. Condition of the Eustachian tube.

5. Mobility of the drum and ossicles.

6. General health of the patient.

1. *Age of the patient.*—All experienced otologists must agree that deafness in the young dependent upon a catarrhal condition of the middle ear is much more successfully treated than when it occurs in the adult and in the old. In fact my own experience teaches me that success in treatment is in direct ratio to the age of the patient. This is accounted for in two ways: (a) the duration of the deafness is naturally longer the older the patient is, and (b) nasal and nasopharyngeal lesions occur more frequently in the young and as a rule are more amenable to treatment. One great reason why the prognosis of deafness in the young is so favorable is due to the frequency of the presence of adenoids and enlarged faucial tonsils, by the removal of which there is always a marked improvement in the deafness.

2. *Pathologic condition of the nose and nasopharynx.*—The prognosis for a catarrhal deafness is always more favorable when there exists distinct morbid conditions in the above parts and which can be removed through appropriate treatment. The fact that the mucous lining of the middle ear and Eustachian tube is continuous with that from the nasal cavities and nasopharynx readily accounts for the causal dependence between the two. Stenosis of the nasal chambers from all causes, nasopharyngeal catarrh from adenoids or the remnants of such are conditions frequently found which exert a baneful influence upon the functions of the middle ear. If they exist and can be removed the prognosis for the deafness is certainly more favorable although such conditions are not always a *propter hoc.* I believe, however, that too much importance has been attached to such morbid conditions as mentioned above, and thus the prognosis has often been more sanguine than it

would otherwise have been. I would not have you think that I underestimate the close relationship existing between catarrhal deafness of the middle ear and the pathologic conditions just mentioned, but that such are the whole cause when they exist, as some would have us believe, I would never admit. There is some undiscovered reason for deafness, look at it as we may, and until we discover it we shall not be able to tell why one patient who has a perfectly normal throat and nose is a sufferer with deafness, and the man whose nasal cavities and nasopharynx are both diseased goes through life untouched.

3. *Duration of the deafness.*—This is self-evident to the experienced otologist. The longer the pathologic conditions which have aided in producing the deafness have existed, the more marked are their influence on the tissues and consequently the more difficult are they of removal.

4. *Condition of the Eustachian tube.*—For years this one organ in our body has been made to suffer for the sins of others. The idea that all catarrhal deafness is caused by a diseased condition of the Eustachian tube, especially that of stenosis, is as deep-rooted in the minds of many physicians as is the Rock of Gibraltar. That such is frequently the case all must admit, but that it is universally so is erroneous teaching. The habit of inflating every ear which comes to you for treatment is unscientific and sometimes injurious. While not so frequent yet undue patency of the Eustachian tube may exist as well as stenosis. Experience has taught me some valuable lessons which cannot always be found in books.

There are two ways of ascertaining the patency of the Eustachian tube: the first by means of the catheter and auscultation tube, and the second by means of bougies.

No conscientious otologist should ever inflate the middle ear without using the diagnostic tube, for the sensations of

the patient are too unreliable to be depended upon. By the constant use of the auscultation tube and the same catheter one can soon learn to diagnose the condition of the lumen, just as by auscultation the physician learns to diagnose the condition of the lungs and bronchial tubes. I say the same catheter, because if different ones be used with varying sized lumens, the sounds heard will also vary. The Politzer bag has been discarded for two reasons: (1) because it frequently blows mucus from the nose into the Eustachian tube, and (2) because it is very difficult to keep clean. In chronic catarrhal deafness the medication of the tube and middle ear can only be satisfactorily accomplished by means of the catheter, if we wish to obtain the best results. To my mind there is but one kind of catheter to be used, and that is silver, which is capable of being bent, and thus able to be made to fit the nasopharynx of every patient. To pass properly this instrument requires some little knack, and when the physician finds that he does not possess this quality he had best use some other method of inflating the ear rather than injure the mucous membrane. The slightest trace of blood following the use of this instrument indicates that it has been used improperly. With children it is best not to use the catheter, and during the last few years I find that an apparatus like the multiple comminuter, or globe nebulizer attached to a compressed air cylinder, accomplishes all that could be expected, and causes much less fear to these young individuals than any of the other methods.

5. *Mobility of the Ossicles and Drum.*—Ankylosis and membranous adhesions in the middle ear prevent free motion of the ossicles when the drum is vibrated. As a rule adhesions are surmised when the drum is retracted. The mobility of the drum, and secondarily that of the ossicles, is best ascertained by means of Seigel's pneumatic speculum,

which produces suction in the external canal and at the same time allows ocular inspection of the drum. When this instrument shows distinct immobility of the head of the malleus and also the handle, and when the only free portion of the drum membrane moves backwards and forwards, the presumption is very strong that the ossicles are ankylosed or bound down with adhesions. My own experience teaches me that the prognosis is much more favorable when the ossicles and drum membrane move freely together under the same traction force.

6. *General health.*—Just as in other organs so in case of the ear, a run-down condition of the general system makes the prognosis more unfavorable. Especially is this the case when the patient is of a tubercular diathesis. Pronounced anemia and rheumatism in my experience are always unfavorable. The tuning-fork tests I have not considered, because in the first place the results obtained by them are relative, and in the second place I have only considered those tests which are objective in character. The tuning-fork in conjunction with other tests affords us frequently excellent information as to the seat of the pathologic process, but I must say that it has aided me very little in knowing what remedy to apply. Prognosis dependent upon the ability to hear the tick of a watch is exceedingly unreliable, and he who depends upon such will often come to grief. The human voice in different degrees of intensity has in my experience proven the most satisfactory test of all in determining the prognosis in any given case.

Passing now from the prognosis, I wish to say a few words in regard to some points in the practical treatment of catarrhal deafness. The modern treatment is based upon the principle that the large majority of such cases owe their origin to some pathological condition of the nasopharyngeal or nasal cavities. Within certain limitations this proposi-

tion is true, and yet the otologist who treats his cases with this all-pervading idea will often be sadly disappointed. Nasal stenosis is one of the most frequent exciting factors in catarrhal deafness and yet marked cases of this condition are found where the ears are never affected. However, there is certainly a close relationship between the two. In catarrhal deafness the nasal passages should always be placed in as healthy condition as possible, but unless there is marked stenosis we need not expect very brilliant results from that treatment alone. Adenoids in children is the most frequent cause of deafness in these young subjects. The removal of such is frequently followed by the most brilliant results and always to the point of benefit. I would always urge the removal of adenoids at the earliest possible age before their evil effects have taken too firm a hold upon the subject. Such growths, in my experience, act not by direct mechanical obstruction of the Eustachian tube, but indirectly by pressure and more especially by fostering a catarrhal condition of all membranes in their neighborhood. Their presence causes a constant congestion and hyperplasia of the mucous membrane, lining the Eustachian tube just as a polypoid degeneration of the middle turbinate will cause an enlargement of the inferior turbinate through pressure stasis. In adults and even at all ages the nasopharyngeal mucous membrane is sensitive and in the majority of cases needs soothing remedies, and the old idea of mopping at random this cavity with strong solutions of nitrate of silver is barbarous in character. Such applications may sometimes be necessary, but should be applied by means of cotton on the end of a wire passed through a catheter. This latter requires some delicacy of touch, but when rightly applied often produces the most happy results. Stenosis of the Eustachian tube, when due to swelling and hypertrophy of the mucous membrane, is best treated by applications direct

to the membrane through the catheter, thus medicating the cavity of the middle ear as well.

When there are distinct strictures of a fibrous character, whalebone bougies are exceedingly valuable, but exceedingly harmful if the physician does not possess that *tactus eruditus*. Rapid dilatation by means of electrolysis with metallic bougies has not obtained for me those excellent results reported by Duel of New York. I have tried this method in several cases but with success no better than that obtained with the ordinary bougies. A precaution should be used of not inflating the ear after the use of the bougies for fear of producing a local emphysema, as once occurred to me.

I am decidedly of the opinion that the injection of vapors into the middle ear is far inferior to the use of liquid medicaments. Iodine and menthol in liquid albolene have yielded me the best results. Fischerich of Wiesbaden has reported a great improvement in deafness from the use of injections of 6 to 8 drops of 2% solution of pilocarpine. I have also used an injection of liquid paraffin as recommended by H. Burger, but have never seen any markedly favorable results therefrom.

Pneumatic massage of the drum, when there is a decided retraction of this membrane with accompanying ankylosis of the ossicles from fibrous adhesions, has been receiving considerable attention during the last few years. In conjunction with other methods it has in some cases decided value, but is by no means a *sine qua non*, as some would have us believe. If Seigel's speculum shows us that only the peripheral portion of the drum membrane moves and the malleus and incus remain fixed, we need not expect much benefit from this method of treatment. However, if all the parts move together, daily massage will prove a very valuable adjunct to the other remedies. It is not necessary to

have one of the expensive apparatus, as I have found that Seigel's speculum does for me all that could be expected and has the advantage of allowing one to see just how much suction is being exerted. When the malleus is fixed and immobile, instrumental manipulation is the last resort.

To sum up the treatment in a few words I would say:

1. See that the nasal cavities and nasopharynx are placed in as healthy condition as possible by the treatment of all catarrhal states and the removal of all obstructions to free respiration.

2. See that the Eustachian tube and the middle ear are medicated at proper intervals in addition to the inflations.

3. Render the drum and ossicles as pliable as possible by some system of massage.

4. Do not forget the general health of the patient.

Such is the outline of the treatment in catarrhal deafness, and the prognosis is always a matter of uncertainty.

DISCUSSION ON THE PAPER OF DR. ROY.

Dr. Henry H. Slack, of LaGrange: I rise to thank Dr. Roy for his timely paper and the manner in which he has treated this timely subject. At best, it is very unsatisfactory, and as a rule we do not obtain very brilliant results in treating cases of catarrhal deafness. Unfortunately I suffer slightly from it myself. I have consulted the best otologists in the United States, and have seriously thought of crossing the Atlantic to consult others. I went to Dr. Bishop, of Chicago, and he told me that he had consulted eminent otologists in almost every capital in Europe, but could not be relieved. He told me that I had better thank the Lord that I was as well as I was, and I have therefore practically given up seeking a cure for catarrh of the middle-ear. The plan Dr. Roy has outlined coincides exactly

with my own experience, and I hope in closing the discussion he will finish his paper with reference to treatment, as he was shut off on account of the time limit.

Dr. J. W. Duncan, of Knoxville, Tenn.: I do not make it a business of treating catarrhal deafness, but if a patient comes to me with cerumen in the ear, causing partial deafness, or with a grain of corn or a bean in the ear, I remove it as best I can. My plan would be to remove the wax from the ear by instilling peroxide of hydrogen, and using warm water with syringe. The peroxide of hydrogen facilitates the softening of the wax very much, so that it can be promptly removed. If it be a bug, fly, bean, or in the nature of a hardened body, I use forceps to remove it. In some cases you can remove a hard round body by simply taking a little piece of cloth, rolling it so as to form a small roll, applying a little glue to the end of it, and in this way you are able to remove a small pebble or bean. You should let it dry, pull out the cloth, and the body comes out with it.

Dr. A. W. Calhoun, of Atlanta: Dr. Duncan is evidently on the wrong track, because the paper deals with catarrhal deafness entirely, and not with cerumen in the ear. I regard catarrhal deafness as one of the unsatisfactory troubles that we have to deal with. We can arrest the process, but it is very rare that we can succeed in restoring the hearing. It is unusual for the hearing in these cases to be perfectly restored, but in a large majority of cases, probably in almost all of them, the cause of the catarrhal deafness is in the nasopharynx, and the treatment depends largely upon getting the nasopharynix in a healthy state. Occasionally, with all the treatment that we can bring to bear on the disease, the pathological process steadily progresses until it gets to its end—almost perfect deaf-

ness. In starting out to treat these cases, careful attention should be directed toward getting the nasopharynx in the best possible condition, improving the general health of the patient, and in that way the individual may have his hearing improved. You should always tell the patient that regardless of all treatment, he may grow worse. It is a source of great disappointment to some patients, after having undergone treatment for several months, to find that they are getting gradually worse. At best, if we can succeed in arresting the progress of the disease, and enabling the patient to hold on to what he has, it is about all we can accomplish.

Dr. P. R. Cortelyou, of Marietta: A number of cases of catarrhal deafness occur from time to time as the result of la grippe, and very many of them might be materially benefited, if not cured, if treatment had been instituted at an early date. Patients defer seeking the advice of a physician from week to week, believing that they are getting better, until the disease becomes so chronic that it is difficult for any physician to do anything for them. I believe in all cases of la grippe complicated by more or less deafness, the patients should seek the advice of physicians early, in order that the proper treatment may be instituted and thereby prevent more serious trouble from developing in the future.

Dr. Roy (closing the discussion): My experience does not agree with that of Dr. Calhoun, and I have not had the success that he speaks of in arresting the progress of the disease. In my paper I made a plea for a more careful and minute study of all these cases, telling the patients that we may improve their condition to a certain degree by wise and long treatment, but never giving them the assurance that they would entirely recover their hearing, because it is well known that while the hearing may be materially

improved in some cases, in others the condition grows progressively worse. When a patient consults you and you make the first examination, it should be carefully and thoroughly made. You should determine the condition of the Eustachian tube. As mentioned in my paper, we may have a diseased condition of both the nose and nasopharynx, which adds greatly to the catarrhal deafness. I see cases daily in which there is a horrible state of affairs in the nasopharynx, and yet there is no deafness. There is some unexplained cause that we have not yet definitely determined. We may put the nose and the nasopharynx in a healthy condition, and yet the deafness may not be benefited.

Dr. Lockhart: I would like to ask Dr. Roy whether he has found the administration of quinine in these cases beneficial.

Dr. Roy: In answer to Dr. Lockhart, I have not found quinine beneficial except in those cases in which there was a distinct malarial element. Of course, we all know that the repeated and continued use of quinine in large doses acts upon the nervous system and auditory nerves, as well as upon the optic nerve, and in cases in which there is a slow grade of inflammation it may impair the hearing.

THE DUTY OF THE MEDICAL PROFESSION AND THE STATE TO CHRISTIAN SCIENCE HEALERS.

P. R. CORTELYOU, M.D., MARIETTA, GA.

The science of medicine has always been classed among the liberal professions, and if we will examine its record from the days of Hippocrates to the present, we will find that those who have been numbered among its ranks have, as a rule, always been earnest, thoughtful men, ever striving to know the truth and to investigate and apply all means which will relieve mankind of suffering and disease, and while we do not claim that a perfect system has been found as yet, still very great advances have been made in regard to the causes of disease, and the best treatment of them, through the patient investigation of earnest minds, and human life has been lengthened and disease overcome and arrested in its course in very many cases.

It is not necessary at this time to recall the many and important discoveries that have been made which have added so much of comfort to human life and have brought so much relief to suffering humanity. It is not surprising, however, that while the medical profession have been endeavoring by research and experience to secure the most efficient means to overcome disease and to educate the people in regard to the best sanitary conditions for the preservation of the health of the community and state, that they should encounter from time to time all sorts of cranks who claim this and that is truth, contrary to all the experience

of the past. So we have the various "paths" and "isms," and often the public seem to think they are as competent to give advice as the most learned and accomplished physician. Of all the "isms," however, the most grotesque and irrational is the one now claiming public favor and patronage under the name of Christian Science, and by the use of religion and a perverse interpretation of the scriptures, would lead people to believe that there was no such thing as disease, but that it was only an erroneous belief of mortal mind. This system, as you all may know, was promulgated some years ago by a Mrs. Mary Baker Glover Eddy, of Boston, Mass., who claims that it was revealed to her by divine authority, and she published a book called Science and Health with a key to the scriptures, which she maintains is the only true method of treating and healing the so-called sick and diseased; said disease not being a reality, but only a belief of mortal mind.

From this work I quote some of the following statements, to show what so many people at the close of this nineteenth century of intelligence and enlightenment are so ready to accept and believe as truth, above all other methods and scientific research of the centuries past.

She says: "The Divine Spirit, testifying through Christian Science, unfolded to the demonstrable fact that matter possesses neither sensation nor life; that human experiences show the falsity of all material things. That mind is all in all, and the only realities are the divine mind, and ideas of mortal mind implies something untrue and therefore unreal.

The blood, heart and lungs have nothing to do with life. Disease arises like other mortal conditions from association. One disease is no more real than another. All disease is the result of education, and can carry its ill effects no farther than mortal mind maps out the way. The five

physical senses are the avenues and instruments of human error. The daily ablution of an infant is no more natural and necessary than would be the process of taking a fish out of water every day and covering it with dirt in order to make it thrive more vigorously.

To reduce inflammation, and dissolve a tumor, or cure organic disease, divine mind is more potent than all lower remedies. It is a noticeable fact that in families where laws of health are strictly enforced, and caution observed in regard to diet, there is the most sickness. When there are fewer doctors and less thought is given to sanitary subjects, there will be better constitutions and less disease.

Until the advancing age admits the efficacy and supremacy of mind, it is better to leave the adjustment of broken bones to the fingers of the surgeon."

Such, then, are some of the remarkable statements made by the head of this sect in her book, which is their only guide. Now, it is a fact not to be denied, that many even of the learned and cultured classes have accepted these doctrines, and are governed by them in their lives, and in dealing with those of their number who may become diseased, and not only so, but they are making every effort to make converts to their system, and to control the action of the courts and lawmakers.

What then shall be the correct and proper course for the medical profession to take in regard to this system so detrimental to the public health and sanitation, is, it seems to us, a question which is worthy of our consideration. We may ignore it completely, or we may show the folly of it, or may demand from the State that all who propose to care for the sick under a form shall be obliged to undergo the same examination, as to qualification, as the practitioners of medicine are called upon to do before they can be admitted to offer their services to the people. It has been generally

conceded that the State has a right to regulate all employments which for any reason involve a hazard to the community. On this principle it forbids any man or woman to practice medicine or put up drugs for the sick without previous special education and training attended by an official examination. The fact that the mental healer prescribes no drug does not take him out of the sphere of responsibility. The practice of medicine does not consist exclusively in the prescription of drugs, for in many cases none are prescribed. The practice of medicine consists in a knowledge of the body, and of the laws which regulate its various functions, and of such advice to the patient, based on that knowledge, as will enable him to comply with those laws. Sometimes it calls for a prescription of medicine to aid, often of what food to eat, and what bodily habits to maintain. Any one who may undertake to heal disease in any way whatever would come under the law as a practitioner, whether he go under the name of Allopath, Eclectic, Homeopath, or Mental Healer; and it is useless to say that these Christian Science healers do not practice for pay, for Mrs. Eddy says that pay in itself is a help in healing, and urges all her followers to demand pay; and I have known of cases where they even demand it in advance of the treatment, which may be a wise precaution for them to take. Christian Science, she says, demonstrates that the person who pays what he is able is more liable to recover than the one who does not. The healer is sure to prescribe a fee for him or herself if he or she does not prescribe a drug for the patient.

We hold, then, that the State has a right to decide by such tests as it may determine, who is competent to practice the healing art, and that these healers, so-called, should not be allowed to practice until they fulfill the qualifications

demanded by the State of all who wish to care for the sick and diseased.

Knowing absolutely nothing of disease, and even denying its very existence, it is not surprising that they should claim the power of curing the sick and maimed. With their beliefs we have nothing to do, but when they boldly proclaim that cancer, consumption, locomotor ataxia, typhoid fever, valvular disease of the heart, and all organic diseases can be cured by them, and that there is no need for sanitation, or that contagious diseases should be isolated, they should be made to know that liberty is one thing and license another, and they should not be allowed to bring the lives of others in jeopardy, but should be made to understand that human life is too valuable to be lightly dealt with. It has generally been the habit of these healers to give up the case when the patient is *in articulo mortis*, for the regular physician to be called in, so that they will not be called on for a certificate of the cause of death, which they would be unable to give. In the case of life insurance it would seem that it might become a very important factor as to whether the policy-holder has a right to refuse proper medical treatment, and so sacrifice a life which might have been saved and loss to the company prevented.

While delusions of this character are usually short-lived, still while many people embrace these views that disease is not real and sanitation should be ignored, great harm is liable to come to the community unless the practice of these views is controlled by the power and authority of the State, and the same law is made binding on them as on all legalized practitioners of medicine.

CHRONIC URETHRITIS AND COMPLICATIONS—THEIR PATHOLOGY AND RATIONAL TREATMENT.

L. AMSTER, M.D., ATLANTA, GA.

My reason for attempting to crowd a subject worthy of a volume into a twenty-minute paper is the extreme frequency of chronic urethritis and its complications and the difficulty of curing them. I am confident that any contribution which gives promise of facilitating the treatment will command your attention.

Rare is the physician who has not shared in the mortification of having had patients with chronic urethral discharges haunt his office for months without benefit, until, with a sigh of relief, he sees these patients depart, to consult another doctor or to become a prey to quacks and patent medicines, and eventually land in some hospital or asylum.

We are forced to admit that often indifference and carelessness on the part of the general practitioner towards the treatment of only a "trivial acute gonorrhœa" makes miserable neurasthenics out of many men and furnish their wives as operative material to the gynecologist.

There is a tendency of late in the medical schools to pay more attention to teaching genito-urinary work, and there is no reason why, with the aid of the microscope and the urethroscope, both easy of understanding and simplicity of handling, the general practitioner should not try to become proficient and successful in the treatment of these common ailments.

The magnitude of the subject will naturally not permit me to go into details. The only result I hope to accomplish is to interest you in the subject and place before you a plan for the rational and scientific treatment of chronic urethritis, which may be new to many of you.

This treatment is by no means a fad or an experiment, but has stood the test of time by experienced, scientific men in Europe and is gradually being recognized in this country.

To fully appreciate and understand the *modus operandi* of this method it will not be amiss to devote a little attention to the pathology.

Acute gonorrhea, generally speaking, is a specific infection with the gonococcus of Neisser, manifesting itself in a superficial, catarrhal inflammation of the urethral mucous membrane, which ordinarily lasts from four to six weeks. Frequently this condition passes into a subacute and a chronic state. This may be due to faulty or overtreatment or to constitutional causes, as tuberculosis, scrofula, anemia, rheumatism, Bright's disease, diabetes, etc.

According to Finger, chronic urethritis is essentially a chronic inflammation of the subepithelial tissue attacking crypts, glands and follicles. This inflammation passes through two stages, namely that of infiltration and that of connective tissue formation and contraction. This may be confined to the anterior or the posterior urethra; ordinarily both regions are involved.

Of course it is important to determine the location and extent of the disease, whether it is still a simple inflammation or has already arrived at the stage of infiltration and cicatrization.

In anterior urethritis the first portion of the urine voided is cloudy, containing flakes and filaments; in the posterior variety the second portion also contains flakes, shreds, etc.

The urethroscopist has the advantage of gaining an ocular demonstration of the portion involved. In the first case astringent and antiseptic injections will often give satisfactory results, especially where systematic and copious irrigations are employed. There are other methods which yield good results, as nitrate of silver instillations, touching up of the diseased spots with nitrate of silver through the endoscope, ointments, medicated bougies or suppositories. In the large majority of cases, however, we will have to resort to instrumental treatment.

Oberlander says: "The object of instrumental treatment of chronic urethral disease is to dilate or break, superficially or deeply, the hard or soft infiltrations that may be present."

Valentine thinks that dilatation need not reach the degree conveyed by Oberlander; the direct pressure upon the diseased region, performing a sort of massage, can empty the crypts, glands and follicles; by pressure or rather its mere presence, dilators dynamically stimulate absorption of infiltrations and cicatrizations and induce, as it were, "a retrograde metamorphosis." Dilatations with metal sounds and bougies are commonly employed.

To Oberlander and to his pupil, Kollman, we are indebted for the ingenious modifications and the vast improvements in the treatment of chronic urethritis by dilatation. Oberlander, into whose hands an Otis dilator had accidentally fallen, constructed, on the Otis principle, other instruments, suitable for all zones of the urethra. Kollman still further modified these instruments. The advantages of the Oberlander-Kollman method are: Asepsis, painlessness, dilatation of diseased spots only, more rapid improvement of the nervous disturbances of the patient and non-interference with his occupation.

The technique of dilatation is as follows: The patient

lies on a table in the recumbent position. After cleansing the external and internal surface of the prepuce, the glans, the corona and the meatus with cotton soaked in bichloride solution 1-6000, we proceed to prepare the instrument, which does not have to be sterilized, as it does not touch the urethra itself. The instrument is inserted with a sterilized rubber cover. If the cover is thoroughly dry we can slip it over the dilator, otherwise we take as much of finely powdered talcum as the point of the instrument will hold and slip the cover over it. It is important to have the cover fit the dilator snugly and to turn the screw as violently as possible, in order to discover any defect in the cover before insertion. Then putting upon the tip of the dilator a liberal supply of a suitable lubricant,* we proceed with the introduction.

All dilators, except Kollman's straight dilator, are inserted in the same way.

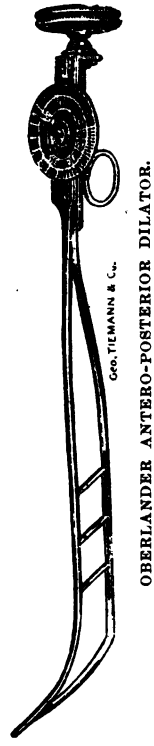
Standing at the right of the patient, the penis is gently drawn by the thumb and fingers of the left hand into a line parallel with Poupart's ligament. The instrument is held like a pen (lightly, not grasped firmly), the dial facing downward. Then the penis is gently drawn over the dilator, as a glove is drawn on a finger, but more gently. When the tip of the dilator has reached the bulb of the urethra a decided resistance is felt. Holding the tip steady now, the penis with the dilator is swung in a circle on its own plane, until the face of the dial reaches the linea alba. Directing the patient to take a long breath, the instrument is gently depressed, when it slips with ease into the posterior urethra and into the bladder. Then still holding the penis stretched over the dilator with the left hand, the screw is turned to the right until the patient experiences a sensation of tension. Let the patient hold the instrument for two or three minutes until that sensation of tension disappears and

*Preferably Van Hoyn's "Lubri Chondrin"

proceed to dilate one or two numbers more, reading the extent of the dilatation off the dial. Let the patient hold the instrument. The first session is best not prolonged for more than two or three minutes.

To remove the dilator turn the screw to the left, not closing the branches entirely, but leaving about one-half number open, lest a fold of the urethra be grasped. Tilt the instrument at its dial towards the abdomen, aiming at the umbilicus, when the dilator will slip out of the urethra. Remove the cover, wash it in hot water, rinse it in a boric acid, carbolic acid or a lysol solution, dry it and place it in a box containing powdered talcum.

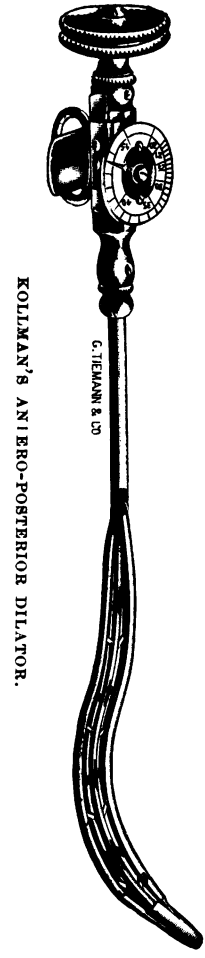
The Oberlander anterior dilator is used for the anterior urethra, if its caliber is smaller than 21 (French).



OBERLANDER ANTERO-POSTERIOR DILATOR.

ANTERIOR DILATOR.

Oberlander's curved dilator is used for the dilatation of the bulbous portion.



KOLLMAN'S ANTERO-POSTERIOR DILATOR.

KOLLMAN'S ANTERIOR DILATOR.

Kollman's four branched anterior dilator for the anterior urethra, after its capacity has reached 21 (F.), is very easily introduced. After having covered the dilator and lubricated, the penis is held in an erect position with the left hand. The dilator is gently inserted into the pendulous

portion of the urethra. Then continue to observe the technique as described for the other dilators.

Oberlander and Kollman have devised a variety of instruments for all portions of the urethra. I find the general practitioner will get along very well with the Oberlander anterior, Kollman anterior and Kollman antero-posterior dilator.

Kollman's ingeniously devised irrigating dilators are more complicated and are better left to the skilled genito-urinary specialist.

The frequency, amount and duration of the dilatations must be judged by the condition, toleration and the results obtained. In a general way, it is well to begin with two weekly dilatations, increasing each dilatation one-half number (F). Begin with two to five minutes and prolong each following dilatation two minutes. The longest dilatation a patient will stand is about forty-five minutes.

Hemorrhage after dilatation is very rare; if it does occur, it is very slight and stops of itself, or can be arrested by the pressure of a bandage around the penis. Severe hemorrhage can only be the result of brutal instrumentation.

As in all urethral instrumentation no force should be used. With proper care and gentle manipulation the patient will not suffer any pain, and I have never found it necessary to cocainize the urethra.

It occasionally occurs after the first few dilatations, that the discharge increases. It is well to call the patient's attention to this fact.

Oberlander considers this increase of discharge due to the "purulent melting" of the connective tissue and infiltration.

Always irrigate the urethra after dilatation. Anterior irrigation after anterior dilatation; intravesical irrigation after posterior dilatation. The solution used is a

potass. permang. solution 1-6000 or a 4% boric acid solution. By observing this rule no case of urethral fever will ever occur.

How long it will take to cure a given case can hardly be foretold. Time and patience are essential. Immediate improvement often tempts physician and patient to hurry the case by too rapid dilatation and frequent treatments. This should be avoided, as it may result in congesting and injuring the urethra. It will not be difficult for the physician to retain the confidence of the patient after he sees the steady improvement in his condition. Indeed cases are not rare where patients desire to be dilated, even after a cure is effected.

The discharge disappears in short order. Stains on the patient's linen disappear and relieve him of a source of great annoyance. The urine becomes clear, shreds, flakes and filaments grow less and eventually disappear; the patient's mental and physical sufferings decrease. With the cessation of these symptoms a normal urethra, as viewed by the urethroscope, will guide the physician, when the cure is actually accomplished. It may tax your time and patience, but the result justifies all efforts.

Decrepit patients, those with acute febrile disease or with vesical tumors, or with genito-urinary tuberculosis, should not be treated with dilatations.

In connection with the treatment outlined the following points should also be considered:

Prohibit your patients drinking carbonated drinks, as soda, ginger-ale, etc., whether the case be acute or chronic. Though often recommended by physicians, it is nevertheless bad advice, as carbonated drinks act as irritants to the genito-urinary canal. Water and milk are best for such patients. Alcohol in any form, more especially beer, should be positively prohibited. If the patient must have an alco-

holic beverage, a glass of claret at mealtime will do the least harm.

No special restrictions need to be placed on diet, except as to indigestible food. Let the patient keep his bowels open. Systematic, moderate exercise and baths are to be recommended.

Moderate indulgence in sexual intercourse will do no harm, provided the microscope demonstrates no gonococci in the secretion and when no acute urethral inflammation exists.

Time does not permit me to touch upon some of the complications and sequelæ of chronic urethritis, as cystitis, pyelitis, etc. To two conditions, however, I would like to call your attention, *i. e.*, stricture and prostatitis.

For the treatment of stricture the Oberlander and Kollman method of dilatation is the treatment par excellence. If the stricture is of such caliber that a dilator cannot be introduced, the French rubber *bougie a boule* should be used, with increasing sizes, until an Oberlander and then a Kollman dilator can be used. Proceed as in the treatment indicated for chronic urethritis. The results obtained by these dilatations are extremely prompt and gratifying. Try it and you will discard urethrotomies as unnecessary. As long as you are able to introduce a filiform bougie, the dilatation treatment can be adopted by simply dilating with the soft rubber bougies as previously mentioned, and then using the dilators. Of course irrigation of the urethra is as necessary after using the bougies as after the dilators.

Prostatitis is a complicaton of chronic urethritis and also of acute urethritis, which is surprisingly frequent, if looked for, and it is responsible for the numerous failures of the general practitioner in the treatment of urethral diseases.

Guyon, the celebrated French genito-urinary specialist, says: It is just as important for the physician to examine

the prostate in urethral affections as it is incumbent upon him to examine the heart in rheumatism.

This is truly no exaggeration. Your injections, irrigations, bougies, sounds and dilatations will be useless, as long as there is prostatic involvement existing and not recognized.

If the prostate is swollen, inflamed and tender, hip baths and copious hot rectal injections will combat these symptoms. Chronic inflammation and enlargement are best treated with the Benique or Guyon sound, introduced like a dilator. These sounds perform a kind of artificial massage. Very much better is prostatic massage per rectum every second or third day.

I may not be out of place to describe a method of preparing the index-finger for massage, which is also useful for all rectal examinations: Dip the index-finger into a wide-mouthed bottle filled with collodion two or three times and dry the finger after each immersion. You will observe a firm coating, which does not interfere with the touch and can be easily peeled off. Place a liberal supply of vaseline upon the finger and proceed to explore the prostate per rectum. You will observe a hardened, enlarged prostate, tender to the touch. The massage is performed at first gently, then firmer by stroking the organ downward and toward the median line, until the prostate feels flattened, or at least as long as the patient can bear the manipulation. The procedure is necessarily somewhat disagreeable and painful, but the patient soon gets accustomed to it, especially if the physician tries to be as gentle as possible. During massage the bladder should always contain some urine or should be injected with a mild boric acid solution, as it facilitates the massage.

If, on exploring the prostate, we find the seminal vesicles, which are situated just above the prostate, enlarged,

we strip the seminal vesicles also. In health the seminal vesicles cannot be felt.

After massage let the patient rest for about five minutes. Massage often causes dilatation of the pupils and faintness. It also causes spasm of the compressor urethræ and the patient is unable to urinate until after the lapse of about ten minutes. The urine voided after massage of the prostate will appear turbid from the expressed prostatic contents.

From the aforesaid it may appear, that all these instrumentations and manipulations are complicated and difficult to accomplish. Let me assure you to the contrary. They are not so intricate, but that the most ordinary skill could master them. I learned the introduction of the dilator after one demonstration.

Dr. F. C. Valentine, of New York, last year kindly placed at my disposal the vast clinical material of the New York School of Medicine and of his large private practice, which gave me ample opportunity to observe the excellent results obtained from the treatments described. I have had occasion to use it in my own practice and I have gained patients and friends through it. If I am able by this paper to induce you to investigate my claim in favor of this treatment, I shall feel amply repaid for my effort.

I thank you for your indulgence and kind attention.

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DISCUSSION ON THE PAPER OF DR. AMSTER.

Dr. James T. Jelks, of Hot Springs, Arkansas (by invitation): I have been very much interested in the paper of Dr. Amster. I have seen hundreds of cases of posterior urethritis in Hot Springs, and I desire to say that I have

never seen a case get well. I used to be very hopeful of these cases and presumed a great deal, but the older I get and the more I practice genito-urinary diseases, the more hopeless I become of curing any case of posterior gonorrheal urethritis. I am hopeless because of the fact that we have so many bands and pockets in the posterior urethra where we have no means of reaching them by any means of medication. We cannot medicate Cowper's gland; we cannot get our solutions to penetrate the ducts of the prostate. How are we going to do it? The disease, let us say, has penetrated the follicles of the prostate ducts, and the pathological process may be located in the ducts of Cowper's glands. If the essayist says that he can cure the class of case under discussion, then I shall go home feeling a little more hopeful for this class of patients. I have been telling them that I could not make any promises in regard to cures. I have had these patients in my sanatorium for some time; I have put them to bed; I have dilated their urethras, and have used applications to deep urethra. I have gone through the whole gamut, and have done them no good. I have advised these people never to get married. As a matter of course they will infect their wives and set up endocervicitis, inflammation of the fallopian tubes, or some other equally serious affection. I want to congratulate the doctor if he can really cure these cases. Personally, I have not been able to do it.

Dr. W. L. Champion, of Atlanta: I have been very much interested in the paper of Dr. Amster. I have had some experience with the use of dilators in treating urethral strictures and chronic cases of gonorrhea, but I must say that I have not obtained as good results from the dilators as I have from the use of the steel sound. In dilating a stricture the pressure ought to be as evenly distributed as possible. With a three- or four-pronged dilator we do

not get the even pressure which is exerted by the steel sound.

If I understand Dr. Amster rightly, he allows his patients to have sexual intercourse during treatment, or in other words before they are well of gonorrhea. When we consider the serious train of troubles that result from gonorrheal infection, especially in women, in my opinion advice of this kind should never be given. Dr. Jelks says when the deep or posterior urethra is involved in gonorrhea the patient is never cured. Now, it can be demonstrated that every case of gonorrhea that extends over a period of two weeks the posterior urethra is involved. This can be proven by washing out the anterior urethra when the bladder contains urine, and have the patient to pass his urine into a clean glass and invariably clap-shreds can be seen. My experience is that nearly every case of gonorrhea extends over a period of two weeks. So according to Dr. Jelks's opinion very few men ever get well of the disease. The great majority of men, some time during their life, have specific urethritis, and on account of suffering womankind I would hate very much to think that a male urethra once infected with gonorrheal poison was never cured. If the microscope is of any use at all, and I think it a very valuable instrument, we can demonstrate very conclusively whether gonorrhea can be cured by producing a discharge from the urethra by injecting a solution of nitrate of silver along the whole length of the canal and examining the discharge and not find the gonococcus. I examine the discharge of every patient that I treat with gonorrhea, and never dismiss the patient as cured unless I am satisfied there are no gonococci present.

Dr. James T. Jelks: I do not want to be put in a false light. I admit that I cure very little with medicines.

There is one disease that we do cure with medicine, and that is malaria with quinine.

Dr. Amster (closing the discussion): I trust that Dr. Jelks, in spite of his large genito-urinary experience, will go home with a more hopeful view with reference to the cure of chronic posterior urethritis. It is too bad to give up all hope in these cases. Unfortunately, we have men who come to us with chronic urethritis who desire to get married, and there is no doubt but what we cure most of them. As I mentioned in the first part of my paper, anything that will facilitate the cure of a chronic urethritis ought to be thoroughly investigated. As I have previously remarked, I have seen a large number of cases of chronic urethritis at the New York School of Medicine and in my own practice, who have been greatly benefited by the treatment I have outlined.

As regards the statement of Dr. Champion that he never allows a man with urethral secretion to have intercourse, I said in my paper that I never allow any man, who has any urethral inflammation or secretion containing gonococci, to have intercourse. But there are cases when the secretion resembles rice water, and contains no pus. I believe the patient is very much better off by allowing him a certain amount of sexual intercourse than having him annoyed by continual irritating erections, because the congestion of the urethra will mentally and physically do the patient more harm than the sexual intercourse.

There is one more point that I desire to refer to, that is, to emphasize irrigation of the urethra after urethral instrumentation. I believe the consensus of opinion is that the irrigating treatment is good treatment, and asking physicians how they irrigate the urethra, more than half of them will tell you that they insert a soft rubber catheter into the urethra and irrigate with it. There is nothing so dif-

ficult as to make the instrument and the urethral canal antiseptic. If we have a method at our command whereby we do not have to introduce any instrument, and yet can irrigate the urethra and bladder, why expose the patient to more or less risk by using an irrigator with a catheter, when we can use a glass nozzle that enters the meatus only?

PNEUMONIA AND ITS TREATMENT.

W. E. SAUNDERS, M.D. ARLINGTON.

It is with pleasure that I have the opportunity of appearing before such an honorable body, and if you will only bear with me a moment, I will try to interest you on the subject of pneumonia and its treatment.

A fact that cannot be disputed—in no other disease does the welfare of the patient depend more upon the skill, ability, bearing, and discretion of the physician than in this, and that nothing is more fallacious than that such cases can be treated by any routine method. The curse of therapeutics to-day is the fact that physicians do not think for themselves, but blindly follow some method seemingly valuable, so that the personal equation of the individual is lost in the sum total of the disease. No one plan can be invariably followed, for the attendant is not treating the disease, but an individual affected by an infection which will vary in its effects according to his or her susceptibility and the virulence of the invading organism. Some of our best authors tell us that pneumonia is an inflammation of the lungs, caused by the presence of pneumococci in the lungs. Others take issue with this, believing that pneumonia is not an inflammation, and assert further that inflammation is perverted nutrition, a process which begins in the nutrient vessels of a part, and which necessarily brings about a change in structure.

For an example: The lung has two distinct circulations —its nutrient circulation, which is supplied from the left side of the heart through the bronchial arteries, and its functional circulation, which is supplied from the right

side of the heart, through the pulmonary arteries. These two circulations are absolutely distinct, hence it comes about that there may be a disturbance of the functional or pulmonary circulation while the nutrient circulation remains undisturbed, thus simply considering pneumonia a germ culture, and not an inflammation.

Mr. President and members of the Medical Association, whether pneumonia is a germ culture or inflammation, caused from the pneumococci, it behooves us as practitioners of medicine to think for ourselves, and resort to some reasonable prophylaxis in making the patient comfortable, in preventing excessive formation of toxins, in materializing them and encouraging their elimination, and increasing the resisting powers of the system against their action, in preventing and managing properly the complications which may arise. Patients with pneumonia may be divided into three classes, namely: Those who are so mildly ill that all they need is good care; cases on the contrary so malignant that nothing can be done which will produce a cure; and the third class lying between these two types, is capable of cure, but only when the individual is aided by the most skillful treatment. To attempt to discuss the treatment of pneumonia without recognizing these facts is futile, for no one who has met with the disease can fail to recall cases which, so far as human foresight can tell, were doomed from the first. My belief of the class in which patients get well if left alone is confirmed when I see so many get well that are badly treated patients, which seem to have extraordinary recuperative power to withstand the disease.

As to treatment, no sooner than I enter the field do I meet with the so-called abortive treatment by the use of bleeding or circulatory sedatives, such as aconite and veratrum viride. It is evident at once that but few patients

can receive this treatment. Suppose a patient to have a bounding pulse, and is seen with symptoms denoting or promising pneumonia, that has a chill and fever, pain in the chest, anxious look, depression and cough, and is asthenic. The treatment I would invariably use would be to give the patient a hot foot-bath, a hot compress over the chest, enough to maintain its primary temperature; I would give veratrum viride in from three to four m. doses every two hours until I controlled the pulse, and the skin is slightly moist or shows the effects of the drug; give morphine or Dover's powders to allay the painful cough, and promote diaphoresis. Gentlemen, I believe at this early period that such treatment may do much to limit the disease, at least, mitigate its severity. This treatment, gentlemen, was instituted by our forefathers. I often recall the words of one of my most distinguished professors (A. W. Griggs) when he said, "Boys, use veratrum viride wisely in the first stages of pneumonia, and I will eat every case that it doesn't relieve." Beyond the stage of congestion or hepatization this treatment should not be used, for if not effective by this time the disease has progressed too far for such methods to do much good. From this point we should use every effort to guide our patient through the storm. The effects of these sedatives are easily overcome by stimulant, if so desired. I invariably, after the first two or three days, give strychnine from 1-30th to 1-50th every four hours to tide my patient through crisis. As to venesection, I never employ this method. It seems to be an unnecessarily rigorous treatment. It deprives the patient of valuable blood that should be exhausted by the progress of the disease. The effects of the sedatives are fleeting and easily overcome, while the effect of bleeding is prolonged and in a sense permanent. I use cold sponging when consolidation has taken place, ice-

bag on the head, but do not use them over the affected area, while theoretically this application of the ice-bag to the affected area is correct. They certainly relieve pain, but my own experience with them has not been encouraging, as it often sets up intercostal neurosis. In majority of cases this local treatment is advantageous. The ice-bag keeps the mind clear, and relieves the pain and controls the fever to some extent. As to antipyretics, I use them very little. Sometimes I use phenacetine to allay nervousness. If the pulse be gaseous and relaxed, I use digitalis and belladonna. As to nitroglycerin, the important experiments of Romberg, which prove that the cardiac weakness in pneumococcus toxemia is due mainly to a vasomotor paralysis, it being clearly demonstrated to me that the arterial pressure is low, as the result of relaxation of the peripheral blood-vessel. This being true, I do not advocate the use of nitroglycerin. As to the doses of digitalis, I often use large quantities, because of the known fact that it loses its regulating power over the heart in the presence of high fever. A number of times I have failed to get any effect until the fever is reduced. From the first to the last in pneumonia the vasomotor system as reflected in the state of capillaries must be given assiduous attention. A failure in this direction with capillary paresis should be anticipated and met with sufficient doses of digitalis and strychnine. As to the relief of the pleuritic stitch and distressing cough which wear out our patients and rob them of their much-needed sleep, to relieve this, I open up the windows and doors to give plenty of God's fresh air, and give hypodermic injection of codein or morphine. Sometimes blisters, if the family so wish it. Gentlemen, sleep is an imperative necessity for the overworked patient in the course of this disease. The nervous exhaustion, which is often the first herald, may be prevented by the timely use of hypnotics. As to oxygen

gas, the opinion is slowly but steadily gaining ground among the great clinicians that oxygen has been much overrated in the treatment of pneumonia. Theoretically, its employment seems to be so well founded, and its application so simple and the apparent relief so striking that the universality of its use is not at all strange. But does it really do any good in those cases in which we need its effect most? This I cannot say from my own experience, as I have never used it, and don't think I care to, because the lung is just as much consolidated immediately after the crisis as it was before, and yet what a change in the patient's breathing. This proves beyond a doubt that dyspnea is not entirely mechanical in origin, as is generally thought, but is mainly the result of pneumococcus toxemia.

Gentlemen, I have not attempted to present to you an exhausted bibliographical article, but one which is purely clinical, and in closing I cannot do better than to reassert the fact already stated, that in no disease does the welfare of the patient depend more upon the skill, ability, bearing and discretion than in this.

DISCUSSION ON THE PAPER OF DR. SAUNDERS.

Dr. O. B. Bush, of Colquitt, Ga.: I do not wholly concur with the position taken by Dr. Saunders in his paper. I think that pneumonia is an inflammation due to the pneumococcus, and the treatment of the disease I do not believe it can be aborted. Undoubtedly the course of the inflammation can be shortened. I do not believe in cold baths or ice-packs, nor in sponging, for the reason that I believe they create more or less shock, which is afterwards followed by a higher temperature than before. In cases of pneumonia I always apply a blister on account of its peculiar soothing effect. It always relieves the stitch that there is

in the side, and it also tends to relieve the inflammation there is in the lungs by inviting the circulating fluid to the surface, thereby relieving it that much.

As Dr. Saunders has said, there is nothing so essential as absolute rest, and we cannot get absolute rest until the pain is relieved, and the quickest way to do this is to apply a blister. It always does it for me. After the application of the blister the patient goes to sleep as soon as the blister begins to draw. I use calomel in small doses combined with minute doses of ipecac and antimony, believing that it acts as a germicide, and defibrinates the blood. I likewise use hyosciamus for the purpose of relieving the dyspnea that often occurs. I always combine the hyosciamus with some of the bromides. I use tr. veratrum virid (Norwood's) in all my case of pneumonia, and I always get good results from it. Another thing I never allow is changing the patient's clothing until the fever has entirely left him.

Dr. J. W. Duncan, of Knoxville, Tenn.: I do not concur in everything that has been said by Dr. Saunders in his paper, although in the main I agree with him. I look upon pneumonia as a disease in which there are serious changes taking place in the tissues of the lung, caused by injury. This injury may be mechanical, chemical, or physical. It is not the result of a peculiar germ—the pneumococcus. Whether the disease be due to traumatism, to chemical irritation, or whether it be physical, it is simply an inflammation of the lung. I agree with him that the veratrum viride will do good in very many cases. It is very appropriate in the first stage of the disease. I do not favor the administration of much morphine. I prefer camphorated Dover's powders. Where the heart is feeble I do not think I would give veratrum viride; it has a peculiar influence upon the pneumogastric nerve. I would not blister a child who has pneumonia, and seldom would I blister

an adult. If you have pleuritis with great pain in connection with pneumonia, a blister may be good, but I would not use it as a rule.

With reference to the use of oxygen gas, I recall one case in particular, a nephew of Dr. A. W. Calhoun, who, during a severe attack, used 125 gallons of oxygen gas, and made a good recovery.

Dr Saunders (closing the discussion): I think that Dr. Duncan must have misunderstood me, because I did not claim that pneumonia could be aborted. I have had twenty-four cases of pneumonia of which I have records within the last twelve months, and in nine of them I was called in consultation.

As to the use of ice-pack or bag, I have found it very uncomfortable to my patients when applied to the head at first, but if you will let it stay for a few moments you will find that the patient is unwilling that you shall remove it from the head because it will relieve him so much. It reduces the fever to a certain extent. I have never used the ice-pack in the first stage of the disease, but later I employ it.

As to the relief of pain, morphine or Dover's powders will relieve it quicker than the application of a blister. I hardly ever use a blister, but if the family wishes it, I sometimes use it, and I have obtained very good results from it.

As to ogygen gas, I believe Dr. Duncan said that he had never had the opportunity of using it, although he mentioned a case in which it was used with great benefit. Considering all the literature on it and what I have read regarding it, I am satisfied as to its efficacy. Until it has been conclusively demonstrated to be very efficacious in the treatment of this disease, I will never use it.

TREATMENT OF PNEUMONIA.

E. J. DENSON, M.D., ALLENTOWN, GA.

In the outset I will classify the disease into two very different stages and assign to each stage such remedies as are indicated. In this disease we find a rapid pulse from two opposite causes. At first, unless the patient has been rendered weak from some complication, previous disease, injury, or old age, we find a rapid pulse from the intensity of the inflammation. I will call this the first stage. Later on the patient will reach a stage, unless well treated early, in which his pulse is rapid from weakness. This I will call the second stage. It is often impossible to tell by examination exactly when the patient reaches the line which divides the latter from the former stage. Now I will say that as each stage has its conditions and treatment applicable thereto, each very different from the other, that in Norwood's tinct. veratrum viride we have a sure, perfect, and safe test as to whether the patient is in the first or second stage mentioned. Unless we are certain that the patient is already in the second stage, or that of weak heart, we should give five drops Norwood's tinct. veratrum viride combined with 1-6 grain morphine sulphate, after which sit down and wait patiently three hours, timing the pulse occasionally. At the end of the three hours, if the patient is in the former stage or that in which the pulse is rapid from the intensity of the inflammation, we will find that the pulse has become slower and softer, approaching nearer

to normal. But on the contrary, if at the end of three hours, we find that the pulse has become faster and weaker, or vacillating, or in other words, unsteady and irregular, perhaps faster, then we may know that the patient has passed the line which divides the two stages, into that in which his pulse is fast from weakness. Now having applied the test, if we find the patient in the former stage, or that in which his pulse is rapid from the intensity of the inflammation, then we should continue to give veratrum at intervals of three hours in such size doses as we may find necessary to run the pulse below 100 beats per minute and then continue to give such size doses as may be required to keep the pulse below 100. We should give 1-6 grain morphine every four hours to prevent the nauseating influence of the veratrum and also to render the breathing easier or less painful. All through the disease from the beginning we may give quinine in five grain doses every six hours for its tonic effect. The quinine and morphine combined will also keep the skin moist and thus reduce the temperature and add to the comfort of the patient. If it seems to deafen patient any, the dose of quinine may be lessened so as not to have this effect on the hearing. During the first stage these are all the internal remedies necessary, except that if the bowels are not fully as loose as they should be, a dose of rochelle salt or some other quick purgative should be given at the very start. Just as soon as the diseased portion of the lung can be located definitely, we ought to blister an area over the diseased portion of the lung equal to the size of the part of the lung involved, and afterwards watch carefully, and if we find more of the lung becoming involved, we should extend the blister correspondingly to cover the diseased part of the lung. If the patient is in the first stage, the nurse should be instructed somewhat

after this wise: Get the pulse below 100 and keep it there by suitable doses of veratrum, given every three hours if necessary. If at the end of three hours the pulse ranges between 100 and 105 give one or two drops, if between 105 and 110 three drops, between 110 and 115 four drops, between 115 and 120 or upwards five drops. The dose may be increased or decreased one drop at a dose if necessary to produce the desired effect, but none at all should be given when the pulse is below 100. But if we find that the second stage has been reached as revealed to us by the bad effect of the veratrum, then we should have the whiskey on hand and immediately give a dose with 1-6 grain of morphine. In a very few minutes the depressing effect of the veratrum will have been overcome. We should then continue to give teaspoonful doses of whiskey at such intervals as the degree of prostration may indicate, say every two hours, or if patient be very weak, every hour. Also in this second stage we should give 1-50 to 1-40 grain strychnine sulphate and doses of eight drops tincture digitalis every four hours, or preferably to the tincture digitalis, I would give one or two tablets containing nitroglycerine 1-100 grain, tincture digitalis two minims, tincture strophanthus two minims, and tincture bellodonna 1-4 minim. Give these tablets and the strychnine every four hours. Of course we must see that the patient gets milk, good chicken soup, beef extract, or some suitable fluid diet at least every two or three hours. If the patient will tolerate milk punch give the whiskey and milk together. If there be much pain from accompanying pleurisy a sack of hot salt or hot mush applied to the painful part and reheated often, will be of service in either stage. In treating pneumonia we need an intelligent nurse, without which we cannot have the remedies properly given. Veratrum given early and

carefully will certainly control the pulse unless the heart is already weak from some of the causes above enumerated, and if the pulse is placed below 100 beats to the minute early in the disease and kept there by this drug properly administered and the other simple instructions carefully carried out, we will have, in uncomplicated cases of pneumonia, very nearly 100 per cent. of recoveries. The state of the weather has a great deal to do with the severity of the disease. We find that patients do a great deal better in cold weather than in warm. The old style of making very large blisters on the chest and the later method of making counterirritation over diseased lung by turpentine stupes only, as recommended by Professor Flint, are both objectionable. I have frequently tried turpentine stupes, and finding no good results therefrom would then draw a blister with cantharides and I would see a change for the better at once. It would appear needless to say that whiskey, digitalis and other remedies which increase the heart's action would do harm if used in the first stage, but I have frequently seen such remedies prescribed in that stage of the disease. Again we could not expect any remedy which depresses the heart, such as veratrum or aconite, to do good in the second stage mentioned. The ante-bellum method of blood-letting to abort pneumonia was sometimes successful if done in the very outset, by taking off the blood pressure from the diseased lung, but if it should fail to abort the disease, then the loss of this life-giving fluid could not do otherwise than greatly endanger the patient's life. In veratrum we have an agent, which can accomplish all that blood-letting could do, and if it fails, there is no harm done by it, as we can immediately counteract its depressing effect by giving the antidote—whiskey and morphine. Veratrum, so potent for good, if properly given in the first stage enumerated, could not be expected to accomplish any good after the stage of weak heart has set in.

WHAT TO SEND TO THE MICROSCOPIST AND HOW TO PREPARE IT.

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Within comparatively a few years the microscope has become a valuable and in many cases an indispensable ally to the general practitioner.

Many of us can remember when the etiology of some of the most common and yet most fatal diseases was but half understood or shrouded in the darkness of ignorance.

It is now almost difficult to believe that not until 1882 was the causative agent of tuberculosis discovered and that the ordinary pus organisms were not isolated until 1884, when Rosenbach succeeded in growing them upon artificial media and demonstrated their relation to suppurative processes, and thus laid the foundation for modern aseptic surgery.

There is not a department of medicine which has not made immense forward strides during the past twenty-five years, and an analysis of the subject will show that the microscope is directly responsible for the greater part of this advance.

The result is that in our schools the subject of microscopy in all its branches is yearly receiving more attention.

The larger universities have each spent hundreds of thousands of dollars upon laboratories fitted with all the necessary facilities for microscopic research.

Thousands of eager workers are toiling at this new bench of industry and freely giving to the profession at large and thus to the world the results of their labors.

The literature of the subject has become enormous, and in order to become expert in the science one must devote years to patient and industrious work.

The general practitioner who was graduated some years ago when microscopy in the schools was in its infancy has in most instances perforce not kept pace with this particular line of work, and probably his practice has prevented him from going to the medical centers for the purpose of special study in the microscopical laboratory, or he has felt that the time he could devote to it would not warrant him in the necessary expenditure of time and money.

Even if he has purchased a microscope and is competent to do the more ordinary work of urine and sputum examination, he has neither the equipment nor the knowledge necessary to determine the forms of tumors and the pathology of tissues.

Despite this if he be abreast of the times he must often feel the need of the aid the microscope can give him, and turn to his brother who has had special training in the microscopical laboratory for help and guidance.

But even here he is confronted by difficulties. The technique of the laboratory is exacting and the methods laid down in the text-books on the subject so numerous as to be confusing. How shall he prepare the material he wishes to send to the laboratory, or, what is of as much importance, how shall he not prepare it?

It is with a view to elucidate this matter and to furnish a concise guide as to the selection of materials for microscopical investigation and the simplest mode of preserving them for transmission to the laboratory that this article is written.

TUMORS.

In every case where there is room for doubt as to whether a neoplasm is benign or malignant the value of a microscopic examination prior to operation is evident, for by it we are able to ascertain the exact nature of the growth and thus to better judge of the steps that should be taken for its removal.

It is often of the greatest moment that we should know whether a given area of ulceration of the cervix is a simple erosion or the result of a carcinomatous nodule. The same may be said of neoplasms elsewhere, and often we are able by the use of the microscope to detect absolutely the character of a growth long before it has reached a stage of growth which would render possible a positive diagnosis by the ordinary clinical methods.

Cutaneous growths which are supposed to be carcinomatous, those tumors of the mouth so often sarcomatous and classed under the general term ranula, neoplasms of the nasal and post-nasal passages, all of these may be diagnosticated at the expense of little inconvenience to the patient and a few days' time.

Of course it is necessary that a piece of the tumor should be excised, but it need not be large nor is a general anesthetic indicated in other than exceptional cases.

One should cut out a piece about a quarter of an inch square, being certain that it comes from the new growth, and this should be put directly into at least one ounce of strong alcohol without having been previously washed in water, neither should it be handled more than necessary.

Commercial alcohol is supposed to be 95% strength but generally falls somewhat short of this.

If absolute alcohol can be obtained so much the better, and of course it should be used undiluted. The tissue may

now be sent to the laboratory in a bottle filled to the cork with alcohol, as this prevents the possible damage of the softer structures during rough handling.

The location of the neoplasm, its size, the rapidity of its growth and any general data bearing upon it should always be noted and the information sent with the specimen in all cases.

TISSUES IN GENERAL.

Tissues procured by autopsy may be preserved in any one of the fixing agents in common use, formulæ for which will be found at the end of this article.

If possible the autopsy should be held within six hours after death in order to guard against post-mortem changes. In cold weather such changes may not take place for several hours longer, but under all circumstances it is better if we can obtain the tissues in as near the recent state as possible.

Small portions of the various organs, lung, liver, spleen, kidney and the like should be put directly into the fixing agent.

If the fluid selected be alcohol the pieces should not be more than a quarter of an inch thick, though they may be somewhat longer and wider, except in the case of lung tissue. Unless lung is solidified it is almost impossible to cut it so thin without crushing it and causing it to collapse. The nature of lung structure admits of the more ready penetration of the fixing agent, and we may therefore cut pieces half an inch in thickness and still secure good fixation with alcohol.

Sections of all tissue should be made with a very sharp knife and at one stroke. A razor is perhaps the best tool if one has not a knife made especially for the purpose.

If Muller's fluid or Zenker's fluid be used the pieces of the denser organs may be as thick as half an inch. If on

the other hand bichloride of mercury solution be used the pieces should never be larger than one quarter of an inch square as it does not penetrate well.

BLOOD.

The microscopic examination of blood is of especial importance in cases of suspected malaria, anemia, leukemia, trichinosis, and septic and pyemic conditions. In many cases a blood count is desirable, but this is of course impossible unless the microscope can be brought to the bedside. Smear preparations must be made, and with a little practice this is a simple procedure.

These keep indefinitely and serve for the examination for malarial parasites, bacteria, and for differential counts of white blood-corpuscles. Whether the spread be made upon the cover-glass or glass slip, the two essential features that are necessary for a successful smear are absolute cleanliness of the glass and a drop of blood of the proper size. The beginner is apt to make the smear too thick. The usual method of procedure is as follows:

Clean two cover-glasses (7-8 squares, No. 2, are the most suitable) with soap and water in order to remove any trace of grease; polish each with a soft, clean cloth, and this must be done or repeated at the bedside of the patient; clean the lobe of the ear with soap and water, make a free puncture in the lower part of the lobe, wipe away the first few drops that flow, and then catch a fresh drop of medium size upon one of the cover-glasses, preferably held in a forceps, quickly invert it and bring it in contact with the other cover-glass allowing the edges to slightly overlap.

The blood should spread evenly between the two surfaces, and the glasses should then be pulled apart by sliding one from the other. If correctly done this should give a thin and even smear on each cover-glass. They are allowed to

dry in the air and then may be kept for months, and if protected from dirt and moisture will not deteriorate.

Smears may be made upon the glass slips by catching a drop of blood on the end of one and with the slip slightly inclined drawing this end across the surface of another slip which has been properly cleaned.

A micro-chemical test may be made of stains which are suspected to be blood-stains, and it may thus be definitely ascertained whether blood is present or not. The article upon which the stain is may be sent intact or the stained portions cut out if it be a garment. Stains upon walls and floors or pieces of furniture may be excised and sent to the laboratory, care being taken in forensic cases that this be done in the presence of witnesses in order that there may be no question as to the identity of the stains examined.

SPUTUM.

Much may be learned from careful microscopic examination of sputum. Among the elements of great diagnostic value may be mentioned elastic fibers, indicating a destructive process in the lungs, spirals, fibrinous casts of the smaller bronchi, molds which may at times be pathogenic in the lungs, actinomyces, echinococcus cysts and hooklets, crystals and bacilli.

Among the latter the tubercle bacillus is by far the most important.

It would seem at this day quite unnecessary to urge the microscopic examination of sputum in every case in which there is the slightest ground to suspect the presence of tubercular lesions.

It is, however, a lamentable fact that the profession at large seems either blind or indifferent to the fact that in this class of cases the microscope is not only the most valuable guide to correct diagnosis at its disposal, but far more

than this that the duty of the physician to his patient makes its use obligatory.

There is also that still higher and more important duty to the community at large, to discover as soon as possible every case of pulmonary tuberculosis and see to it that the patient be instructed as to the proper care of his sputum so that he be not a menace to the happiness and lives of his relatives, friends and the public at large.

In tubercular cases the sputa first raised in the morning is more apt to contain the bacilli.

It is not necessary to add any preservative to sputum as it will keep for several days and the B. tuberculosis may be found if present even after putrefaction and liquefaction have taken place. One may add a few drops of carbolic acid in case only an examination for B. tuberculosis is to be made, as this enhances the staining qualities of the organism and acts as an antiseptic as well. If animal inoculation is desired or cultures are to be made of course this is not permissible.

URINE.

This may best be preserved by adding a drachm or so of chloroform to a four-ounce bottle of urine. It is better to collect the urine passed about two hours after a hearty meal.

If it is desired to make a quantitative analysis the total quantity passed in twenty-four hours must be collected and measured and a mixed sample of this sent to the laboratory, together with data as to the total amount passed.

The urine may be examined for tubercle bacilli in suspected tubercular disease of the genito-urinary tract. If this is desired it is well to collect a considerable quantity of urine, allow it to stand for about ten hours and decant

the clear upper portion, reserving the lower part, in which will be the sediment, for the examination. If the microscope fails to reveal the tubercle bacillus it may be that an animal inoculation may prove its presence.

VOMIT.

A minute examination of vomited material will often aid in the diagnosis of gastric ulcer, chronic gastritis and cancer of the stomach. Pus has also been found in vomit indicating a suppurative process of the gastric walls or a rupture into the gastric cavity of a neighboring abscess.

The addition to vomit of a small quantity of chloroform will prevent decomposition and will not interfere with the future investigation of its solid constituents.

FECES.

Fecal matter may contain various intestinal parasites and their ova, tubercle and other bacilli, blood, pus, portions of undigested food, etc. It is best to send it without adding a preservative, provided the delay in transmission is not too great.

Of course if a bacteriological examination by culture or animal inoculation is desired the material must be collected in a sterile vessel and thorough aseptic precautions taken in its subsequent manipulation.

CRUSTS AND SCALES.

Crusts and scales from cutaneous diseases may be sent dry. An examination of these may reveal the nature of the malady if it be due to some cutaneous parasite.

The mistake, which is quite common, of sending the crusts from a supposed epithelioma, with a request for information as to whether or not such is the case, should be avoided, as a piece of tissue only is of value.

HAIRS.

Hairs may be examined to determine a pathological condition, such as the forms of fungi which frequently attack them and also for medico-legal purposes. In either case they should not be submitted to the action of any reagent.

It is best to put them in a small, clean bottle. If they are from a forensic case they should be collected and placed in the bottle in the presence of witnesses and the bottle sealed and marked with a distinguishing sign, in order that there may be in future no possible question as to the identity of the hairs examined. The hairs of many of the lower animals are very different in structure from human hairs, and it may be a simple matter to prove that hairs found upon an instrument supposedly used in committing murder are not human hairs, which would of course be a strong point in favor of the defense.

PUS.

Pus from various situations may be examined for pyogenic organisms, actinomyces, anthrax, B. tetani, tubercle bacilli and gonococci. If other than a microscopic examination is desired of course the material should be collected and handled under asceptic precaution and no reagent added.

It is generally very difficult to demonstrate the tubercle bacillus in pus from an abscess or tubercular joint except by animal inoculation. This consists in injecting subcutaneously or into the peritoneal cavity of a guinea-pig some of the suspected material. The animal is allowed to live five or six weeks, when, if the injected material was tuberculous the characteristic lesions will be found in the animal.

The secretions of the urethra in cases suspected to be due to the diplococcus of Neisser may be positively diagnosticated by means of the microscope.

Particularly is this of value when one who has recently had gonorrhea consults the physician relative to the propriety of his marriage. It is well known that such advice is frequently sought, and if the patient is allowed to marry while there are still present in his urethral crypts the organisms of gonorrhea, the physician may be responsible for the unhappiness or even the death, of an innocent woman who might have been protected had he done his full duty. High authorities do not hesitate to assert that all cases of pyosalpinx are due to the above organism.

Long after a specific urethritis has subsided we may be able to find the gonococcus in the mucous threads common in the urine of such cases. If necessary a discharge can be set up by the use of stimulating injections or the free drinking of beer.

Smears of the pus should be made upon the glass slips sold for microscopical purposes, or if these are not at hand upon strips of window glass, or the pus may be collected in a vial, or even, as a last resort, upon a piece of cloth, or the stained dressings may be sent to the laboratory.

Several examinations may be necessary before a positive conclusion is arrived at, but who can deny that any amount of care and toil and expense is not better than the slaughter of the innocents which daily takes place from this cause.

CYSTS.

Examination of cystic fluids obtained by aspiration sometimes leads to the determination of the cause of the pathological process.

Hooklets and other portions of echinococcus cysts may be found in hydatids.

The addition of chloroform in small quantity will act as a preservative.

SEMEN.

In rape cases the contents of the vagina obtained by wiping it out with a piece of clean gauze may show the presence of spermatozoa. These may exist in the vagina for several days.

Any stains upon the garments should also be examined in order to determine their nature.

The whole garment or the stained portions alone may be sent to the laboratory, the usual precautions as to identity of specimens in medico-legal cases having been taken.

FORMULÆ.

MULLER'S FLUID.

Bichromate of potassium	1 part.
Sulphate of sodium	2.5 "
Water	100 "

One of the best general fixing agents. About twenty times the bulk of the tissue should be used and the fluid changed as often as it becomes turbid, which will be every day for several days.

ZENKER'S FLUID.

Bichromate of potassium	25.00
Sulphate of sodium	10.00
Bichloride of mercury	50.00
Water	1000.00 c. c.

Before using add 1 c. c. of glacial acetic acid to each 20 c. c. of the mixture. This solution is much used and is a very good fixative, but tissues do not always stain well after being fixed in it. The tissues should be allowed to remain in the fluid for from two to twenty-four hours, according to size.

They will, when fixed, be found to be quite solid. They

should then be removed and washed in running water over night and preserved in 80% alcohol.

FORMALIN.

Aqueous solutions of commercial formaldehyde may be used in from two to ten per cent. strength. Fixation is fairly good.

For the eye this is the best agent at our command. It must be used in 10% solution and a small nick should be made in one side of the globe to allow the fluid to penetrate the vitreous.

Alcohol must never be used for preserving eyes.

SOME OF THE USES OF VERATRUM VIRIDE.

J. E. MANGHAM, M.D., Reynolds, Ga.

Veratrum to my mind has so many uses that I hardly know where to begin, but I shall confine my remarks to the two conditions in which it has served me best, and while I do not hope to offer you anything new, still I am satisfied from my conversation with a good many physicians and from what I see in my journals, that veratrum does not receive the consideration it deserves in some conditions. I shall confine myself to the discussion of its use in puerperal convulsions and pneumonia, and to properly appreciate what is to follow, I shall ask you to bear with me while I refresh your minds very briefly on its physiological action.

Veratrum is a spinal sedative and in moderate doses reduces both the frequency and force of the heart and in this way lowers blood pressure. In large doses it produces cold, clammy sweat; vomiting; a very rapid, thready pulse, and great depression. All these symptoms can, however, be easily and quickly overcome by the administration of alcohol, brandy, whisky, aromatic spirits of ammonia or a hypodermic of morphia.

In that dread disease, or rather symptom of disease, puerperal convulsions, than which no more trying condition, unless it be post-partum hemorrhage, ever confronted or confounded a doctor, it has proven my sheet-anchor.

With a woman who is either threatened with or possibly has already had a convulsive seizure, with her nervous system excited to the highest pitch, pain in the head and pulse strong, bounding and beating anywhere from 100 to 160 per minute, a convulsion likely to come at any mo-

ment, then it is that veratrum comes as a friend in need. It is best to administer it hypodermically, for there is no time to be lost and you cannot afford to wait for the stomach to act.

I have always used Norwood's Tincture, given in from six to ten minim doses and repeated every thirty minutes, if necessary, until the pulse comes down to 70, or 65 even, and then give it in sufficient doses to keep it there, and I defy any woman with a pulse of 65 to have a puerperal convulsion. Remember I am not proposing to give a treatment for puerperal convulsions, but am only trying to call your attention to the benefits to be derived from this one remedy, and to make its action more prompt and more certain and lasting it is best to administer one-fourth to one-half grain of morphia with the first dose; then you may go on with your treatment as the symptoms may demand, by emptying the uterus if the convulsions are antepartum, free cathartics and diuretics, etc.; but do not neglect to push your veratrum, and if it acts as well for you as it has always done for me, I am sure you will be pleased with it.

Now we come to speak of its use in pneumonia, and when I say pneumonia, I mean lobar pneumonia. What are the pathological conditions we have to meet? We have a lung already burdened with more blood than it can accommodate, the capillary blood-vessels over-distended and the blood in a condition of stasis, being damned back upon the heart and embarrassing it, and all the while that organ trying to overcome the difficulty by beating faster and stronger, thus trying to force the blood through this obstruction, and every beat only makes bad matters worse, until after a while the heart begins to fail in strength and the obstructed area gets a little rest, because the heart no longer has the strength to send so large a volume of blood nor to send it with such force as it once did, and what is

the result? The blood-vessels slowly begin to relieve themselves, resolution begins and the patient goes on to convalescence. Now in the first stage, when the pulse is strong, frequent and bounding and the obstruction has begun in the lung, when every beat of the heart only adds fuel to the fire, there is every indication present for veratrum. Give it to him then every two, three or four hours, in sufficient doses to bring his pulse down to seventy beats per minute, then in doses sufficient to hold it there. By this means you not only reduce the frequency but the force of the heart's action as well, and you will now find the pulse soft as well as slow, and you have thus given the lung time in which to relieve itself.

I would not advocate the use of veratrum throughout the course of pneumonia, but only during the active stages of the inflammation, for while it is potent for good, carried too far it is potent for evil as well. I am aware that my authority for such a line of treatment is somewhat limited, but experience of a few men who have given it a thorough trial will bear me out in what I say.

Understand me now, I am not trying to give you the treatment for pneumonia, but am only telling you what may be accomplished with veratrum by its timely and judicious use, and I believe when it is so used it will to a great extent simplify the remainder of the treatment, especially if, when the pulse has come down to about seventy, you will cover the affected area with a cantharidal blister.

No doubt some will be ready to assail me on the ground that veratrum depresses the heart and that in pneumonia we need cardiac tonics instead of depressants, and to those I will say, first, that veratrum does not depress the heart when used judiciously; and, secondly, that I do not advocate its use when the heart begins to fail, for then I would urge the necessity for cardiac tonics and stimulants.

A CASE OF PROSTATO-CYSTITIS WITH COMPLICATION.

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As denoted by my caption, it is not of prostato-cystitis in general that I propose to speak, but of a particular case. Moreover, it is not so much to the disease itself as to the embarrassment of certain complications that I shall invite your attention.

In the year 1891 the patient to whose case I shall refer, having had already a good deal of trouble in micturating, was taken with obstinate and severe retention of urine resulting from obstruction caused by a much enlarged prostate gland. This condition was, after a time, relieved; but was followed by a cystitis which subsided only to give place to a chronic vesicular catarrh, and a permanent inability to void urine without the use of a catheter.

The hypertrophied gland continued to enlarge up to the summer of 1898, when it reached the size of a large orange, and a portion of it protruded some distance into the bladder; thus necessitating the use of an extra long specially curved metallic instrument.

About this time an alarming hematuria set in accompanied by intense pain and inflammation of both the gland and the bladder. Of course the first indication was to evacuate the bladder, but upon the introduction of the catheter it was found that its contents were not of such a character as to flow. A large coagulum had formed of sufficient firmness to be distinctly felt through the abdominal wall.

A recurved instrument was at hand, but could it have been introduced would not have been of any more utility

than the simple one. The clot became larger, the distention and pain increased; then there was considerable pyrexia followed by pronounced toxemia which soon became profound, the patient becoming unconscious both to surroundings and to pain. It was fast becoming a serious question as to what should be done to remove the decomposing contents of that cavity, for it was quite evident that without its accomplishment an early death was imminent. So precarious had become the situation that even suprapubic cystotomy suggested itself as a last resort.

However, the patient's age was over seventy, which fact, taken together with his general condition, precluded the advisablity of such a method of procedure. Therefore the question resolved itself into whatever method might be successful *per urethram*.

The only *available* instruments at hand were the catheter, already *in situ*, and an ordinary household syringe. After a few moments of meditation the syringe was attached to the catheter, the valves being so placed as to produce suction *from* the bladder. This plan, which at first was thought to be a happy inspiration, a little later seemed destined to end in woeful disappointment; for when the bulb was compressed it failed to expand, so firm had become the clot within the diseased organ.

Not yet completely baffled, another idea soon offered itself. The rubber tube of syringe was firmly grasped near its attachment to the catheter between the thumb and fingers of one hand and tightly compressed, while that hand was brought forward along the tube up to the first valve. Without yet releasing the grasp of this hand the other hand was passed over the same portion of tube in like manner. After a number of repetitions of this series of actions the bulb began to expand and was not long in being filled. By continued manipulation in this way the flow was established and the bladder was at last emptied of a

large quantity of putrescent blood and ammoniacal urine which emitted a most powerful, sickening and offensive odor.

The syringe was then readjusted and the bladder thoroughly irrigated with a warm solution of permanganate of potassium of the strength of about 1 to 2000. The irrigation was kept up at intervals in connection with appropriate general treatment, for several weeks; at the end of which time the patient had regained his previous state of health. Nevertheless, he has subsequently suffered from two severe attacks of orchitis, first of one testicle and then of the other, both attacks resulting in suppuration of such violence and extent as to well-nigh bring about spontaneous castration. Under antiseptic treatment, with the free use of peroxide of hydrogen, these complications terminated favorably.

Those who believe in the efficacy of castration in cases of this character would expect some diminution in the size of the prostate gland. I cannot state that the gland is any smaller than it was two years ago, though it may not have become at all increased.

In conclusion I will say that the general health and condition of the patient is now pretty fair for one of his age. His improvement and approach to recovery has been all that could be expected in cases of this class. In common with the rest of the profession I have to deplore the fact that we have not more effective means of relieving or reducing hypertrophy of the prostate gland.

SOME POINTS OF GENERAL INTEREST IN REGARD TO DRUG ADDICTIONS.

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I do not propose to attempt an exhaustive discussion of drug habits, but simply to call attention to some interesting features of the subject, a few which I have never seen mentioned, but which are important and should be known to the general practitioner of medicine.

While a number of drugs of the pharmacopœia are sometimes used habitually, still there are only a few which get to be so used because of their peculiar effects, or which create in the system a demand for continual repetition. The others are used simply by reason of habit, and there is no real physical suffering from their discontinuance. Alcohol, tobacco, opium in some of its forms, and cocain are the most prominent of those, the use of which causes a demand for continuous use—in fact lead to an abnormal condition, which, after suspension, must be recovered from before one can be said to be cured, and it often seems as though this condition is never recovered from, as, no matter how long one may have abstained, the habit is resumed far more readily than addiction is reached in the beginning.

Opium, in one form, is the drug most frequently used habitually. Its habitual use does great damage to the individual, disturbing all the functions and rendering one unfit for the duties of life, no matter what one's calling may be. Its effects are very frequently not readily apparent, and hence thousands are using it without being at all suspected.

I know a prominent surgeon who has been addicted to the morphia habit for twenty years, and I doubt if a single person in his State suspects it.

The works on therapeutics give as the effects of the continuous use of opium a muddy, sallow complexion, contracted pupils, constipation, albuminuria, sleeplessness, etc. While these are present in some, they are absent in many, who use large quantities for years and still have healthy looking skins, while in others the pupil is not affected except that it responds slowly to light and darkness, and a great many are not at all constipated. The laity look upon drowsiness as a constant effect of the habitual use of opiates, but this is far from true, in many the very opposite effect being produced by the drug, and many opium or morphia habitués take, almost constantly, hypnotics in order to procure sleep. The habitual use of morphia, in a majority of cases, suspends sexual desire, and also, in the female, the menstrual function, though exceptions to both these rules are not infrequent. I know one man who has used it in large doses for twelve or fifteen years, and he tells me that there has never been a time when his sexual power could be said to be weak, and I also know one lady who has several times become pregnant while using morphine.

I am studying at present the effects of opium habituation on the reflexes, and though I have not pursued it sufficiently to arrive at conclusions, still, it is proving interesting, and I would advise that when these are found abnormal the morphia habit should be excluded before giving to them their full diagnostic significance.

The examination of the urine is also proving of much interest, and a simple test for the presence of morphia in the urine is much to be desired. It is usually understood that the habitual use of morphia gives rise to transient albuminuria. I have found albumen in the urine of but one morphinist.

A point of more interest and importance is the finding of morphia itself in the urine, as these parties will not hesitate to deny their habit, and thus obtain life insurance; and, owing to the great prevalence of the habit it would, I believe, pay the insurance companies to require such a test in all cases. I had recently a patient come to me for treatment who developed pneumonia on the day of arrival and died in a few days. He had insurance in a number of companies, some of which was obtained while using the drug.

The cocain habit alone, according to my experience, is rare, nearly all of them being morphinist, too, and I find a good many morphinists who take cocain by sprees; leaving it off with little difficulty, while in certainly the large majority of cases the morphinist is bound to keep up his dosing at regular intervals. However, I have met a few who claimed that they took it and left it off at will, as DeQuincey claims that he did for eight years. A few, owing to nausea resulting from morphia alone, always use it combined with atropin. The effect of this is to limit the amount of morphia used, though they get enough atropin to be the more harmful of the two. One case that I know uses the combined tablet ¼ gr. and 1-150 gr., taking a dozen or more tablets by the syringe per day, thus getting 1-12 gr. of atropia.

A point of interest and surprise to one who has not had experience with these cases is the rapidity with which they can increase the dose of morphia in relapses. While the beginner usually takes a year or two to get up to the maximum dose, that is, where one can take practically any amount, still, in cases of relapse, though none has been used for a long time, the dose can readily be run up to fifteen or twenty grains within a month, so that the system does not seem ever to regain its virgin condition. We see the same thing, however, in the use of tobacco, the first attempts at using it, unless done very cautiously, producing great dis-

tress, but after being once habituated to it, if left off even for years, it can be resumed without the slightest unpleasant effect. We frequently hear of morphia habitués taking an overdose and dying in consequence. I do not believe this possible to one thoroughly habituated. One who takes 20 grains can take 60 grains without feeling any decided difference in the effect, and one patient told me that he had frequently taken a drachm at a single dose without experiencing any effect, except that he would not need another for two or three days. I have heard of one man's taking 10 drachms within forty-eight hours.

A point of considerable importance, not to us as physicians particularly, but to the general public, is as to the fitness of drug habitués for places of trust, office-holders, jurors, etc., and I maintain that no habitué should hold any office of trust, or one requiring discretion and judgment; and, particularly, that he is unfitted for a juror. Owing to the difficulties of taking his accustomed "shot" while serving on a jury, in a murder trial for instance, he would do anything he could to hurry on the jury's decision. One told me that were he in such a position, rather than keep a jury tied up when there was no opportunity for his getting the accustomed dose, he would consent to the hanging of what he was sure was an innocent man; and I believe he is no exception in this.

If I shall have succeeded in bringing some to a sense of the extent of drug habituations, and the great harm done thereby, thus rendering them more cautious in the use of those drugs which are liable to result in the establishment of a habit, my object shall have been accomplished.

SOME POINTS IN THE PREVENTION OF INFECTION IN POST-OPERATIVE DRESSING.

WILLIAM J. LITTLE, M.D., MACON, GA.

An article along the lines this paper proposes to follow requires one, perhaps, of longer experience and a broader field in operative procedures to receive the interest its merit deserves. No originality will be attempted in developing this subject. It is a simple endeavor to show that by following the precepts of good teachings, results in conformity to the primary preparations of the patient, assistants and field of operation in the hands of a careful surgeon, may confidently be expected. A patient should have his bowels, stomach and bladder emptied when practicable, before an operation. It is supposed that a surgical cleanliness, which meets all the requirements of an antiseptic or an aseptic conscience, has been fully observed in their minutest details. That the nails, hands and forearms of the assistants are scrubbed with sterile stiff brushes in soap and boiled water, then in alcohol or ether and lastly submerged for several minutes in bichloride solution 1-2000. Special attention should be given beneath the nails with the knife and brush.

The surgical field of the patient is treated in the same manner as those for the assistants, preferably twelve to twenty-four hours prior to operation. If hair is present, the surface is first shaved. A pad of moist bichloride gauze 1-2000 is placed in contact with the field until time of operation, when it is washed off quickly with alcohol

and irrigated with a normal saline solution. In emergencies, modifications of these details are often necessary. Solutions and surgical accessories are sterilized.

Basins can quickly be rendered safe by burning alcohol in them for a few minutes. Instruments are safest boiled in a solution of soda-bicarbonate. Towels and aprons are boiled. Dressings: Sterilized gauze or cotton.

Sutures, where practicable, boiled silkworm-gut or chromicized catgut.

We are to suppose that these details are observed, and the patient is operated and returned to his bed. What should be the rational and conservative after-treatment necessary to obtain the best results? The diet is watched, stimulation is given *pro re nata*, and the bowels are regulated.

As to the point in question, namely precautions necessary to prevent infection in after dressings, it should be remembered that the primary dressing is requisite as long as it is sweet and the patient's temperature is practically normal, and that any unwarranted interference is meddlesome and dangerous.

An incision under normal provisions exudes lymph, which, in a few hours, becomes agglutinated, sealing its sutured edges. This process constitutes the primary stage of union. Nature's collodion has accomplished a purpose here in supplying the material for adhesions to become organized, and the excess coagulating upon its surface effect a barrier against the possible ingress of bacteria. Therefore it is logical to conclude, where drainage is not required the primary dressing should usually remain intact, undisturbed until the sutures are removed.

With drainage the dressing is so arranged that the tube. or whatever else is used to effect this purpose, may be re-

moved when necessary without disturbing the major part.

After the third day, when the bowels have been regulated, if there is temperature, or if the patient is unduly restless and complains of pain, darting or throbbing in character, it is necessary to investigate the parts, using the same antiseptic precautions as those used at the time of operation.

Infection of stitch holes, attributable to a fault in the suture material, or its preparation, or when, in an apparently united wound, an abscess follows their removal within a few days, infection is due frequently to a too zealous application of antiseptic solutions, which act upon the lymphatic deposits, dissolving its encrustation and exposing the edges and stich holes, which act as capillaries, and which may attract débris of exfoliated cells and leucocytes.

The plan safest in my hands is to remove the dressings in ordinary cases in six to eight days. With a dry sterilized forceps the suture is grasped midway between its entrance and its exit. It is gently lifted up, and with dry sterilized scissors, the suture being between the blades, the tissues are depressed until a portion of the stitch, which has been buried, comes into view. It is then cut and lifted out.

Due care must be taken in not twisting or depressing the forceps, as either movement tends to draw a portion of the exposed suture within the opposite hole. A dressing of plain bisterilized gauze is then placed over the surface and held in position with adhesive plaster and a light bandage. The fate of an operation from infection is sealed when the last suture is tied. Unnecessary opening up of dressings and irrigations but tend to increase the danger.

Watch carefully the temperature; it is usually a safe guide in inflammation. If, when removing the sutures, an absence of inflammation is present, I am satisfied to rest my case.

Thus in uninfected operations I use no irrigation or solution upon the wound surface. Following this procedure, trusting for results in my precautions against sepsis at the time of operation, then, quietly awaiting nature's resolution, my results have been satisfactory, giving me, in ordinary work, no mortality, and in primary unions one hundred per cent. In one case,a hemiotomy,the patient removed his dressings on the second day. Superficial infection resulted. This result is not included in the above assertion, as the origin of infection is easily traceable to the patient's interference.

Case 1. Monolocular cyst of right ovary, weight thirty-five pounds; operated at Roff Home in an ordinary room. Sutures, silkworm-gut. Bowels moved under a saline on third day. Dressing changed and sutures removed on eighth day. Union. Redressed on fourteenth day, sat up on twenty-first day, maximum temperature 100 on second day.

Case 2.—Incised wounds of abdominal wall with injury of omentum. Incised wounds over shoulder and forearm. Operation omentum ligated and returned and examination for perforations made. Closed with silk. Incised wounds closed with same. Maximum temperature 99.4. Operation made in a negro cabin. Dressed and sutures removed on seventh day. Redressed on fourteenth day. Sat up.

Case 3.—Partial obstruction of intestines due to lateral adhesions. Operation in an ordinary room in residence. Adhesions broken up. Silkworm-gut used to close. Bowels moved under salines and enema on second or third day. Maximum temperature noticed on second day. Dressed and sutures removed on seventh day. Redressed on fourteenth and sat up on twenty-first day.

Case 4.—Sarcoma of right broad ligament, weight seventeen ounces occuring in a child eight years of age. Tumor removed through a median incision. Adhesion to omentum ligated distant from the growth. Portion of broad ligament ligated at a distance from pedicle. Sutures silkworm-gut. Maximum temperatur 102.2 F. first twenty-four hours following operation. Calomel and soda each gr. 1-2 given p. r. n. on second day. Temperature noticed higher each alternate day. Quinine given, temperature controled. Sutures removed and dressed on eighth day. Union. Redressed on fourteenth, and sat up on twentieth day.

SOME OBSTETRICAL EXPERIENCE.

E. L. BARDWELL, M.D., TALBOTTON, GA.

Two cases occurring in my obstetrical practice presented unusual conditions calling for operative interference.

Some twenty years ago I was summoned to a negress, multipara. The labor was uneventful till the dilatation of the os, the rupture of the membranes and the descent of the head (O. A.) was completed. Then for an hour or more the pains increased in severity but with absolutely no advance of the head. As the woman began to show some signs of exhaustion, I delivered with forceps a child weighing three and a half pounds.

A few weeks ago I saw a negro woman, the mother of eight children. She stated that she had been in labor for a week. Examination showed an ample pelvis and a slightly dilated os. Returning after six hours I found the os $\frac{2}{3}$ dilated, the abdomen much distended and no presenting part to be detected. I ruptured the sack and an immense amount of amniotic fluid was discharged. Such an abnormal condition was now revealed to the examining finger that it was necessary to introduce the hand and locate mouth and ears to determine definitely the presentation.

The pains were coming on every two or three minutes and strong enough apparently to soon expel the child, but at the end of an hour the presenting part was still free above the brim. The woman was much alarmed and begged for help, so with a finger on either side of the neck, I readily delivered a fetus, *anencephalic*, but otherwise perfect, of about eight pounds weight.

These cases seem to confirm the teaching of the books that the pressure of the average fetal head is necessary for the proper dilatation of the maternal parts and the prompt expulsion of the child.

Doubtless both these cases would have been delivered without assistance but at the expense of much needless suffering.

CONSTITUTION AND BY-LAWS

OF THE

Medical Association of Georgia.

CONSTITUTION.

ARTICLE I.

Name.

Section 1. The name of this Association shall be "The Medical Association of Georgia."

Objects.

Sec. 2. The objects of this Association shall be to organize the medical profession of the State in the most efficient manner possible; to encourage a high standard of professional qualifications and ethics, and to promote professional brotherhood.

ARTICLE II.

Members.

Section 1. Any white physician, who resides within the limits of the State, who is a graduate of a regular Medical College in good standing, and who adopts and conforms to the Code of Ethics of the American Medical Association, shall be eligible to membership in this body.

ARTICLE III.

Officers.

Section 1. The officers of this Association shall consist of one President, two Vice-Presidents, one Secretary, one Treasurer, five Censors.

Sec. 2. The President and Vice-Presidents shall be elected for one year; the Secretary and Treasurer each for five years; each officer shall continue in office until his successor is elected and installed.

Sec. 3. Members of the Board of Censors shall be elected for a term of five years. There shall be an annual election of one member. Vacancies occurring from other causes shall be filled for the unexpired term.

ARTICLE IV.

President.

Section 1. The President shall be the chief executive officer of the Association. He shall preside at all the meetings of this body, preserve order, and perform such other duties as parliamentary usages impose on presiding officers.

Sec. 2. He shall appoint the requisite number of delegates to the American Medical Association, and to such other scientific bodies as may be desirable.

Sec. 3. The President shall be *ex officio* member of all annual committees.

Sec. 4. He shall, in the intervals between the annual sessions, direct and control the general policy and business of the Association, with careful attention to its constitutional provisions.

Sec. 5. He shall appoint all annual committees, except Committee on New Members; he appoints only the Chair-

man of this committee (Art. V., Sec. 7, By-Laws); also an Auditing Committee, consisting of three members, whose duty it shall be to investigate and audit the books and accounts of the Secretary and Treasurer, and report their findings to the meeting.

ARTICLE V.

Vice-President.

Section 1. Vice-Presidents, in their order, shall, in case of the absence or the death of the President, discharge all the duties belonging to the presidential office.

ARTICLE VI.

Secretary.

Section 1. The Secretary shall have charge of all the books, papers and records of the Association, except those belonging to the office of Treasurer, and shall record the minutes of the Association at all its meetings. He shall be *ex officio* member of the Publishing Committee.

Sec. 2. He shall, by February 1st, send a notice to each member, of the time and place of ensuing meeting, requesting his interest and his personal efforts in securing a large attendance, and requesting each member to send the title of his paper to the Chairman of the Program Committee.

Sec. 3. He shall keep the roll of the members of this body who have retained their membership by compliance with the provisions of this Constitution, and also the names of those who have forfeited membership, together with the cause of such forfeiture.

Sec. 4. In the absence of the Treasurer he shall collect the usual dues of the members in attendance at the regular session.

Sec. 5. The necessary expense incurred by the Secretary in attending the annual sessions shall be defrayed out of the funds of the Association.

Sec. 6. He shall furnish a balance sheet at each annual meeting to be published in the Transactions. This shall consist of an itemized statement of all accounts made, and all moneys received and distributed by him.

Sec. 7. The Secretary shall provide and keep upon his desk, during each meeting, a copy of the "Rules of Order" provided for by the By-laws.

ARTICLE VII.

Treasurer.

Section 1. The Treasurer shall collect the annual dues and have custody of all the moneys belonging to the Association, and pay the vouchers of the Secretary when approved by the President.

Sec. 2. He shall at each annual meeting furnish a balance sheet for the past fiscal year to be published in the Transactions. This shall consist of an itemized statement of all financial transactions of the past year, all accounts made, all moneys received and from whom, and all moneys disbursed, to whom and for what purposes, with vouchers attached. (A fiscal year includes the period of time between the first day of one annual meeting and the first day of the next.)

Sec. 3. The necessary expense incurred by the Treasurer in attending the annual sessions shall be paid out of the funds of the Association.

ARTICLE VIII.

Censors.

Section 1. The Board of Censors shall hold annual meetings concurrently with the annual sessions of the Associa-

tion, to whom shall be referred all applications for membership, with vouchers from two members; and in such cases their decision shall be reported to the body for action. Three of their number shall constitute a quorum for business, and the Chairman and Secretary shall be designated by the President.

Sec. 2. They shall at all times, in the interval between, as well as during the meetings, take cognizance of all offenses against the Association or its members, or violation of the Code of Ethics (and prefer charges against the offenders). They are authorized to summon before them such members and witnesses as they may deem necessary. They shall have the power of reproving members for cause, without reporting their action to the Association. Or they may report any member to the Association for reprimand, suspension (for a definite time) or expulsion. They shall report the names of the individuals, and the offense for which action has been taken, immediately to the Association for action, at which time, or at the next succeeding meeting, such individuals may have the right to appeal to that body. Charges brought against a member or members of this Association, otherwise than by the Board of Censors, must be preferred in writing and signed by a member of this Association.

Sec. 3. The President of the Association, or the Chairman of the Board of Censors, may call the Board together at any time between the meetings, for the investigation of any offense on the part of any member or members, of sufficient importance to necessitate such action. The Board of Censors shall at all times have the power embodied in Art. VIII., Sec. 2.

Sec. 4. The President and Board of Censors shall constitute a tribunal with the power to suspend any officer for cause.

ARTICLE IX.

Finances.

Section 1. Every member of the Association shall pay annually into the Treasury such sum as the Association may determine, which amount, it is expected, will be paid during the session of the body.

ARTICLE X.

Constitution.

Section 1. The Constitution shall take immediate effect from its adoption.

Sec. 2. The By-laws now in operation, and Order of Business, are adopted, so far as they agree with this Constitution.

ARTICLE XI.

Annual Meeting.

Section 1. The annual meetings shall take place on the third Wednesday in April, and at such place as shall be designated by the majority of the Association.

ARTICLE XII.

Amendments.

Section 1. Any amendment that may be offered to the Constitution shall lie over until the next annual meeting; and for its adoption at such meeting shall require a two-thirds vote of all present and voting.

BY-LAWS.

ARTICLE I.

Order of Business.

Section 1. Meeting of the Association at an hour appointed by the Program Committee.

Sec. 2. Report of the Annual Committees: (1) Committee on Arrangements; (2) Committee on Program; (3) Committee on Publication; (4) Committee on Necrology; (5) Committee on New Members; (6) Committee on Medical Legislation.

Sec. 3. Report of Special Committees.

Sec. 4. Report of Secretary.

Sec. 5. Report of Treasurer.

Sec. 6. Appointment of Auditing Committee, who shall report on or before morning of third day.

Sec. 7. Election of officers.

Sec. 8. Selection of place for next annual meeting.

Sec. 9. New business.

Sec. 10. Unfinished business.

Sec. 11 Installation of new officers.

ARTICLE II.

Election of Officers.

Section 1. The officers of the Association shall be elected by ballot, without a nomination, at one o'clock p. m., on the last day of the Association, and if there is no election on the first ballot, the three names receiving the highest number of ballots shall be voted on, the other names being

dropped. If there is no election on second ballot, the two names receiving the highest number of ballots shall be voted on until election occurs.

ARTICLE III.

Selection of Place of Meeting.

Section 1. Selection of place for next annual meeting shall occur immediately after the election of officers.

ARTICLE IV.

Officers.

Section 1. All officers of this Association shall enter upon their duties at the time of their election.

ARTICLE V.

Committees.

Section 1. Each committee, except the Committee on New Members (see Art. V., Sec. 7, By-Laws) and their Chairman, shall be appointed by the President.

Sec. 2. There shall be six Annual Committees, as follows:

Sec. 3. The Committee of Arrangements shall consist of five members, residents of the place selected for the ensuing meeting. They shall provide suitable accommodations for the meetings of the Association, space for medical and surgical exhibits, and make such other local arrangements as they may deem essential for the success of the meeting.

Sec. 4. The Committee on Publication shall consist of five members in addition to the President and Secretary (*ex officio*). They shall provide for the publication of the

minutes of the session, together with such papers as are deemed worthy. They shall also append to each volume of Transactions a copy of the Constitution and By-Laws of the Association, and Roll of Membership. They shall also be governed by Article VIII., By-Laws.

Sec. 5. The Committee on Necrology shall consist of five members, whose duty it shall be to procure short memorials of deceased members, and present them for publication in the Transactions.

Sec. 6. The Committee on Program shall consist of five members. They shall, on February 1st, issue a circular letter to each member of this Association, and such other regular physicians as they may deem proper, requesting them to read a paper at the ensuing meeting, the title of which should be sent to the Chairman of this Committee before March 1st. On March 10th they shall issue and mail to each member a preliminary program. Ten days before the meeting they shall issue and mail to each member the final program. This program shall contain the titles of all papers to be read, the order of business, entertainments, etc., as agreed upon by the Committee of Arrangments and this committee, information in regard to hotel and railroad rates, amendments to Constitution and By-Laws, and such other information as may suggest itself to this committee as being of value to the members of the Association.

Sec. 7. Committee on New Members shall consist of a Chairman appointed by the President, and one other member from each county in the State, who shall be appointed by the Chairman. The duties of this committee shall be to make as complete a directory of the regular physicians in this State as possible, and at such times as they deem best to issue a circular letter to these physicians, requesting them to become members of this Asssociation and attend

its meetings. Each member of this committee will send to the Chairman as accurate and complete a list of the regular physicians residing in his own and adjourning counties as possible.

Sec. 8. The Committee on Legislation shall consist of nine members appointed by the President for a term of three years. There shall be an annual appointment of three members. Vacancies occurring from other causes shall be filled for the unexpired term. This committee shall organize sub-committees in each county, whose duty it shall be to assist in the framing and passage of such laws as may be desired, and in the enforcement of them in their respective counties afterward. It shall be the duty of the committee to prevent the repeal of such salutary medical laws as are now in effect; to frame and assist in the passage of such medical legislation as may be deemed necessary and beneficial, and to take proper steps to discover, report and prosecute all violations of existing medical laws. It shall be the duty of the main committee to meet in Atlanta during the sessions of the Legislature or at such other times as is deemed best to carry out its purposes. (The attention of this committee is called to the following: To suggest a feasible plan for the introduction into court of expert medical testimony in criminal cases. To suggest a feasible plan for the prevention and spread of tuberculosis.)

Sec. 9. The Auditing Committee shall consist of three members appointed by the President on the morning of the first day of the meeting. They shall examine, verify and audit the books and accounts of the various officers, and report their findings to the meeting on or before the morning of the third day.

ARTICLE VI.

Membership.

Section 1. Any member, for old age, length of service, or other good reasons, can, upon the recommendation of the Board of Censors, be elected to an honorary membership without dues; otherwise they shall be governed by the rules applying to active members.

Sec. 2. The names of all applicants for membership, whose application is endorsed by two members of this Association, and accompanied by the initiation fee, shall first be presented to the Association through the Secretary and then referred to the Board of Censors, who shall report their action to the meeting for adoption.

Sec. 3. Any physician qualifying under Article II., section 1, of the Constitution, whose application is vouched for by two members of this Association and accompanied by the initiation fee, may, on the discretion of the President, be accepted before Association convenes, as a temporary member. Such membership can be made regular only by the action of the Association as provided for in Article VI., Section 2, of the By-Laws.

ARTICLE VII.

Finance.

Section 1. Each member on admission shall pay an initiation fee of five dollars, which shall include his dues for the first year.

Sec. 2. Each member shall pay in advance the sum of three dollars annually thereafter.

Sec. 3. All members who have neglected to pay their dues for two years shall be reported to the Board of Cen-

sors, by the Treasurer. The Board of Censors shall have the power to forfeit the membership of such delinquents. The Treasurer will notify the members of the action of said Board and the state of their account.

Sec. 4. No physician who is in any way indebted to the Association will be eligible to membership until such indebtedness is canceled.

Sec. 5. No member shall receive a copy of the Transactions until his fees are paid in full.

ARTICLE VIII.

Papers.

Section 1. The titles of all papers to be read at any annual meeting shall be furnished the Chairman of the Program Committee thirty days before the meeting.

Sec. 2. Not more than twenty minutes shall be occupied in reading any paper. No speaker shall be allowed to speak a second time on the same subject, nor consume more than five minutes in the discussion.

Sec. 3. No paper shall occupy over twenty pages of the Transactions.

Sec. 4. The Publication Committee shall decline to publish any paper not handed to the Secretary complete before the final adjournment of the annual meeting.

Sec. 5. No paper shall be read before the Association that has already been published, or that has been read before any other body.

Sec. 6. A member presenting a paper must be present at the meeting in order to have it published in the Transactions.

ARTICLE IX.

Quorum.

Section 1. The members present shall constitute a quorum for all business excepting the admission of new members or acting upon amendments to the Constitution and By-Laws, when not less than twenty-five members must be in attendance.

ARTICLE X.

Decorum.

Section 1. No remarks reflecting upon the personal or professional character of any member shall be in order at any meeting, except when introduced by the Board of Censors.

ARTICLE XI.

Stenographer.

Section 1. The Association each year shall appoint an official stenographer.

ARTICLE XII.

Rules.

"Roberts' Rules of Order" shall be accepted as a parliamentary guide in the deliberations of the Association.

ROLL OF MEMBERS

OF THE

Medical Association of Georgia.

1900.

ARRANGED ALPHABETICALLY.

ABBREVIATIONS—P., President; V.-P., Vice-President; S., Secretary; C. S., Corresponding Secretary; T., Treasurer; O., Orator; C., Censor; indicating the offices the members hold or have held.

Members are particularly requested to notify the Secretary promptly on making any changes in their post-offices.

The Secretary will esteem it a favor if any member will write him at once on noticing any inaccuracy or omission in the roll.

Name.	Post-office.	County.	Admitted.
Adair, W. J	Rockmart	Polk	1897
Adair, R. E	Taylorsville	Bartow	1897
Adams, F. L	Critic	Elbert	1899
Aiken, W. F	Savannah	Chatham	1895
Alexander, Orlando L	Reidsville	Tatnall	1899
Alexander, G. L	Forsyth	Monroe	1894
Alexander, W. H	Blakely	Early	1900
Allen, L. C	Hoschton	Jackson	1900
Allen, H. D	Milledgeville	Baldwin	1891
Amason, C. T	Nielly	Telfair	1897
Amster, L	Atlanta	Fulton	1894
Anchors, H. L	James	Jones	1899
Anderson, N. Z	Eudora	Jasper	1894
Anderson, J. M	Shiloh	Harris	1900
Anthony, E. R. (V.-P.)	Griffin	Spalding	1887
Armstrong, W. B	Atlanta	Fulton	1900
Ashford, J. W	Madison	Morgan	1900
Avant, A. L. R	Patterson	Pierce	1895

Name.	Post-office.	County.	Admitted.
Avary, Arch	Atlanta	Fulton.	1887
Avary, J. C	Atlanta	Fulton	1889
Bacon, W. W	Albany	Dougherty	1890
Bailey, J. W	Gainesville	Hall	1861
Bailey, E. M	Acworth	Cobb.	1899
Baker, Thos N	Cordele	Dooly	1899
Baird, Jas. B. (s., o.)	Atlanta	Fulton	1872
Baker, E. L	Dublin	Laurens	1897
Baldwin, M. A	Cuthbert	Randolph	1890
Barnum, R. E. L	Richland	Stewart	1892
Barron, R. B. (v.-p., o.)	Macon	Bibb	1884
Barton, W. B	Morrow	Clayton	1899
Battey, W. W	Augusta	Richmond	1896
Bedingfield, S. T	Omaha	Stewart	1894
Bell, A. K	Madison	Morgan	1889
Bell, W. Jay	Atlanta	Fulton	1900
Belt, L. J	Millen	Screven	1888
Benedict S. C. (o., c., p.)	Athens	Clarke	1883
Benson, M. F	Atlanta	Fulton	1900
Benson, Chas. F	Atlanta	Fulton	1897
Brigham, Wm. R	Dublin	Laurens	1898
Binion, W. W	Benevolence	Randolph	1893
Bishop, W. H	Roopville	Carroll	1900
Bivins, T. F	Vienna	Dooly	1897
Bizzell, B. W	Atlanta	Fulton	1894
Black, A. H	Thomaston	Upson	1893
Blalock, W. J	Atlanta	Fulton	1894
Bloomfield, Jas. C	Augusta	Richmond	1890
Borders, D. J	Red Bud	Gordon	1899
Bourns, F. S	Manilla	Philippine Islands	1897
Bowie, J. W	Wade	Emanuel	1900
Boyd, A. F	Savannah	Chatham	1891
Boyd, Edward W	Atlanta	Fulton	1897
Boynton, R L	Geneva	Talbot	1899
Bozeman, E. K	Forsyth	Monroe	1892
Bradley, Francis	Atlanta	Fulton	1900
Bradley, John H	Dublin.	Laurens	1899
Brannon, J. W. L	Pavo	Thomas	1900
Brasselton, B. F	Pendergrass	Jackson	1898
Boyett, A. S	Friendship	Sumter	1897
Boynton, Chas. E	Atlanta	Fulton	1900
Brawner, Jas. N	Atlanta	Fulton	1900

Name.	Post-office.	County.	Admitted.
Bryan, J. A	Pendergrass	Jackson	1898
Bridges, B. L	Ellaville	Schley	1897
Brigham, J. C	Girard	Burke	1891
Brown, M. S	Fort Valley	Houston	1894
Brown, George	Atlanta	Fulton	1899
Bruce, W. W	Thomasville	Thomas	1881
Bryans, R. G	Jackson	Butts	1890
Bryant, W. C	Jackson	Butts	1900
Bryant, W. J	Summerville	Chattooga	1892
Bullard, W. M	Monticello	Jasper	1897
Bullard, J. H	Machen	Jasper	1897
Bullard, William L	Columbus	Muscogee	1900
Burdett, J. R	Tennille	Washington	1889
Burford, H	Brunswick	Glynn	1888
Burford, R. E. L	Brunswick	Glynn	1890
Burns, J. K	Clarkesville	Habersham	1897
Burrows, L. K	Carnesville	Franklin	1899
Burt, A. Moody	Macon	Bibb	1896
Bush, E. B	Colquitt	Miller	1895
Bush. O. B	Colquitt	Miller	1897
Butler, P. M	Atlanta	Fulton	1894
Butts, R. M	Gordon	Wilkinson	1892
Caldwell, Frank H	Waycross	Ware	1898
Calhoun, A. T	Cartersville	Bartow	1894
Calhoun, A. W. (V-P., C., P)	Atlanta	Fulton	1874
Callaway, Enoch	LaGrange	Troup	1895
Callaway, J. A	Milledgeville	Baldwin	1888
Campbell, J. L	Atlanta	Fulton	1894
Campbell, Wm. E	Atlanta	Fulton	1900
Carson, M. F	Griffin	Spalding	1897
Carter, W. D	Winterville	Clarke	1898
Carswell, N. T	Macon	Bibb	1897
Cartledge, E. C	Atlanta	Fulton	1900
Cato, F. L	DeSoto	Sumter	1893
Cato, R. E	Americus	Sumter	1893
Chambers, A. S	Inman	Fayette	1900
Champion, W. L	Atlanta	Fulton	1894
Chapman, Geo. L	Dublin	Laurens	1897
Chappell, Guy	Bronwood	Terrell	1897
Christian, J. M	Washington	Wilkes	1898
Chason, J. D	Bainbridge	Decatur	1895
Chason, Thomas	Donaldsonville	Decatur	1895
Cheatham, W. B	Dawson	Terrell	1880

Name.	Post-office.	County.	Admitted.
Childs, J. A	Atlanta	Fulton	1894
Clark, M. A	Macon	Bibb	1893
Clark, P. S	Darien	McIntosh	1890
Clark, John B	Eastman	Dodge	1899
Clarke, L. B	Atlanta	Fulton	1900
Coile, F. W	Winterville	Oglethorpe	1897
Coile, J. G	Monticello	Jasper	1897
Cole, J. F	Carrollton	Carroll	1884
Coleman, Thos. D	Augusta	Richmond	1891
Coleman, J. D	Henderson	Houston	1897
Collier, T. J	Indian Springs	Butts	1899
Collins, Katherine R	Atlanta	Fulton	1894
Comas, P. H	Baxley	Appling	1889
Cooper, Hunter P	Atlanta	Fulton	1894
Corson, E. R	Savannah	Chatham	1895
Corbin, M. X	Savannah	Chatham	1898
Cordle, Frank	Trion Factory	Chattooga	1898
Cortelyou, P. R. (V.-P.)	Marietta	Cobb	1887
Corry, John A	Newborn	Newton	1900
Cosby, F. L	Box Spring	Talbot	1897
Coursey, W. D	Vidalia	Montgomery	1894
Cox, R. P	Rome	Floyd	1891
Cox, W. J	Gainesville	Hall	1894
Crawford, A. H	Abbeville	Wilcox	1893
Crawford, J. M	Atlanta	Fulton	1888
Crawford, W. B	Lincolnton	Lincoln	1900
Cranford, O. G	Sasser	Terrell	1898
Crichton, L. M	Atlanta	Fulton	1900
Cromer, James D	Atlanta	Fulton	1900
Crowe, W. A	Atlanta	Fulton	1892
Crozier, J. H	Cedar Springs	Early	1889
Culpepper, W. F	Senoia	Coweta	1892
Currie, M. L	Ailey	Montgomery	1890
Daniel, J. Wallace	Glenville	Tattnall	1898
Daniel, Jno. W	Savannah	Chatham	1898
Darby, J. I	Americus	Sumter	1893
Davidson, A. A	Augusta	Richmond	1896
Davidson, A. C	Sharon	Taliaferro	1887
Davis, E. C	Atlanta	Fulton	1894
Davis, Jeff	Toccoa	Habersham	1893
Davis, T. B	Newnan	Coweta	1892
Davis, Wm. L	Albany	Dougherty	1893
Day, J. B. H	Social Circle	Walton	1899

Name.	Post-office.	County.	Admitted.
Deadwyler, O. L	Carlton	Madison	1898
Dean, J. G	Dawson	Terrell	1889
Dean, W. L	Woodstock	Cherokee	1894
Denson, E. J	Allenton	Wilkinson	1897
Des Portes, Wm. L	Columbus	Muscogee	1899
Doster, B. R. (V.-P.)	Blakely	Early	1873
Doughty, Wm H. (C.)	Augusta	Richmond	1857
Doughty, Wm. H. Jr. (V.-P.)	Augusta	Richmond	1880
Douglass, J. E	Cuthbert	Randolph	1889
Douglass, J. B	Talbotton	Talbot	1897
Dozier, R. T	Milledgeville	Baldwin	1893
Drake, C. M	Manilla	P. I	1897
Drewry, T. Ellis	Griffin	Spalding	1892
Drewry, N. B	Griffin	Spalding	1897
Duggan, J. H	Stephensville	Wilkinson	1884
Duncan, Wm,	Savannah	Chatham	1868
DuPree, Ira E	Danville	Twiggs	1897
Earnest, J. G	Atlanta	Fulton	1882
Eberhardt, B. F	Gillsville	Hall	1898
Eberhardt, J. W	Hartwell	Hart	1897
Edenfield, W. N	Pinehurst	Dooly	1897
Edwards, Walter E	Cordele	Dooly	1899
Elder, Eugene B	Indian Springs	Butts	1900
Elder, S. A	High Shoals	Oconee	1900
Elkin, W. S	Atlanta	Fulton	1882
Elliott, W. H. (P.)	Savannah	Chatham	1884
Ellis, S. T	Riner	Johnson	1896
Ellis, J. A	Atlanta	Fulton	1899
Embry, B. L	Villa Rica	Carroll	1900
Emery, W. B	Atlanta	Fulton	1900
Erwin, Geo C	Young Harris	Towns	1899
Evans, J. H	Davisborough	Washington	1897
Farmer, J. L	Savannah	Chatham	1897
Favre, Paul	Fayetteville	Fayette	1900
Felder, L. A	Atlanta	Fulton	1894
Fischer, L. C	Atlanta	Fulton	1900
Fitch, W. E	Savannah	Chatham	1898
Fite, B. W	Resaca	Gordon	1899
Fitts, W. L	Carrollton	Carroll	1893
Fitts, P. W	Mountville	Troup	1897
Folks, G. P	Waycross	Ware	1890
Ford, DeSaus're (V.-P., C., P)	Augusta	Richmond	1857
Foster, Eugene (V.-P., C., P.)	Augusta	Richmond	1875

Name.	Post-office.	County.	Admitted.
Foster, J. J	College Park	Fulton	1900
Fowler, A. L	Atlanta	Fulton	1900
Frederick, H. F	Grovania	Houston	1897
Fulcher, M. O	Waynesboro	Burke	1895
Fullilove, H. M	Athens	Clarke	1900
Furse, R. L	Monticello	Jasper	1900
Fussell, J. C	Fitzgerald	Irvin	1899
Gann, Wm. F	Columbus	Muscogee,	1891
Gardner, J. F	Ashburn	Worth	1899
Garland, J. T	Hillsboro	Jasper	1889
Garlington, T. R	Rome	Floyd	1893
Garrard, J. O	Macon	Bibb	1899
Gaston, J. McF	Atlanta	Fulton	1884
Gaston, J. McF., Jr	Atlanta	Fulton	1894
Gaulden, Samuel S	Quitman	Brooks	1892
Gerdine, John (C., V.-P.)	Athens	Clarke	1882
Gewinner, N. G	Macon	Bibb	1899
Gheesling, J. H	Greensboro	Greene	1891
Gillespie, J. W	Albany	Dougherty	1897
Goethe, J. E	Ocilla	Irwin	1897
Goldsmith, W. S	Atlanta	Fulton	1893
Goneke, L. C	Dawson	Terrell	1897
Goodrich, E. C. (T.)	Augusta	Richmond	1876
Goodrich, W. H	Augusta	Richmond	1900
Goolsby, R. C	Juliette	Monroe	1891
Goss, I. H	Athens	Clarke	1877
Graham, St. J. B	Savannah	Chatham	1898
Green, Geo. F	Dublin	Laurens	1900
Green, S. H	Oakdale	Fulton	1892
Green, J. H	Decatur	DeKalb	1900
Green, J. H	Hartsfield	Colquitt	1899
Geer, Chas. C	Atlanta	Fulton	1900
Greenwood, T. M	Mineral Bluff	Fannin	1894
Griffin, Archie	Luke	Wilcox	1900
Griffin, W. C	Cartersville	Bartow	1897
Griffith, Jas I	Danielsville	Madison	1897
Griggs, Alfred F	Atlanta	Fulton	1899
Grimes, George J	Columbus	Muscogee	1872
Guinn, J. A	Conyers	Rockdale	1896
Hall, Henry M	Cedartown	Polk	1900
Hall, M. R	Warrenton	Warren	1900
Hall, J. R	Carnesville	Franklin	1898

Name.	Post-office.	County.	Admitted.
Hall, Thos. M	Milledgeville	Baldwin	1899
Hammond, J. H	LaFayette	Walker	1898
Hamrick, James D	Carrollton	Carroll	1899
Hancock, Thos. H	Atlanta	Fulton	1896
Harbin, R. M	Rome	Floyd	1894
Hardeman, John	Haddocks	Jones	1899
Hardman, L. G. (V.-P.)	HarmonyGrove	Jackson	1877
Hardman, W. B	HarmonyGrove	Jackson	1892
Hardon, Virgil O. (O.)	Atlanta	Fulton	1886
Harison, W. H Jr	Augusta	Richmond	1886
Harvard, Virgil O	Arabi	Dooly	1900
Harrison, E. S	Thomson	McDuffie	1897
Harrison, Jas. G	Sparta	Hancock	1899
Harris, E. A	Midville	Burke	1893
Harris, R. B	Savannah	Chatham	1885
Hawkins, A. M. F	Ball Ground	Cherokee	1891
Haygood, A. G	Oxford	Newton	1899
Henderson, J. R	Sun Hill	Washington	1884
Herman, J. D	Eastman	Dodge	1884
Hicks, Charles (C.)	Dublin	Laurens	1884
Hiers, J. Lawton (V.-P.)	Savannah	Chatham	1895
Hightower, R. H	Dublin	Laurens	1899
Hill, J. J	Washington	Wilkes	1880
Hill, W. S	Pelham	Mitchell	1900
Hilsman, P. L	Albany	Dougherty	1871
Hobgood, L. M	Fairburn	Campbell	1900
Hobbs, A. G	Atlanta	Fulton	1882
Holbrook, W. H	Dalton	Whitfield	1900
Holland, N. M	Statesboro	Bullock	1899
Holliday, A. C	Athens	Clarke	1897
Holliday, W Z	Augusta	Richmond	1884
Hollis, T B	Bolingbroke	Monroe	1897
Holmes, J. B. S. (V.-P., P.)	Atlanta	Fulton	1872
Holmes, W B	Wadley	Jefferson	1899
Holt, W. F. (V.-P., P.)	Macon	Bibb	1867
Hood, J. W	Atlanta	Fulton	1894
Hopkins, J. G. (C., V.-P.)	Thomasville	Thomas	1890
Horrocks, J. Marion	Thomasville	Thomas	1893
Horsley, J. S	West Point	Troup	1894
Horsley, J. S Jr	West Point	Troup	1896
Hubbard F M	Harmony Grove	Jackson	1900
Hubbard, T. V	Atlanta	Fulton	1896
Hudson, P. L	Cochran	Pulaski	1896
Huguley, G. Pope	Barnesville	Pike	1899

Name.	Post-office.	County.	Admitted.
Hull, Marion McH	Atlanta	Fulton	1900
Humphries J. R.	Acworth	Cobb.	1876
Humphries. W. C	Acworth	Cobb.	1890
Hunter, A. P	Tifton	Berrien.	1899
Hurt, Charles D. (c.)	Atlanta	Fulton	1890
Hutchins, M. B	Atlanta	Fulton	1892
Ingram, H. R	Maye	Clay	1900
Izlar, R. P	Waycross	Ware	1898
Jackson, Max	Macon	Bibb	1897
Jarrell, J. A	Jackson.	Butts	1899
Jarrell, J. G	Savannah	Chatham.	1899
Jelks, E. L	Quitman.	Brooks	1896
Jelks, N. P	Hawkinsville	Pulaski	1882
Jenkins, C J	Edison	Calhoun	1900
Jernigan, Chas. S	Sparta	Hancock	1899
Johnson, J. Clarence	Atlanta	Fulton	1894
Johnson, James C.	Macon	Bibb	1875
Johnson, L. M	Rowland.	Upson	1893
Johnson, W. A	Rome.	Floyd	1897
Joiner, B. L.	Andersonville.	Sumter	1897
Joiner, W. W	Hawkinsville	Pulaski	1897
Jones, Henry A	Millen	Screven	1898
Jones, Louis H. (s.)	Atlanta	Fulton	1890
Jones, L. M	Milledgeville	Baldwin	1880
Jones, T. S	Jeffersonville	Twiggs.	1893
Jones, H. H.	Hartsfield	Colquitt	1899
Keaton, P. H	Damascus	Early	1889
Kelley, T J	Tennille	Washington	1884
Kemp, A. Pierce	Barnesville	Pike	1899
Kendrick, W. S. (o.)	Atlanta	Fulton	1874
Kenyon, O. T	Weston	Webster	1892
Kennedy, J P	Atlanta	Fulton	1900
Kime, R R	Atlanta	Fulton	1892
King, Campbell C	White Plains	Green	1900
King, J. C.	Atlanta	Fulton	1896
Kinnebrew, E. R.	Athens.	Clarke	1898
Lancaster, J. F	Forsyth.	Monroe	1884
Lane, L. P.	Stillmore	Emanuel	1895
Lanier, Sidney J.	Savannah	Chatham.	1890
Latimer, J H	Waycross	Ware.	1897
Lattimore, Ralston	Savannah	Chatyam.	1898

Name.	Post-office.	County.	Admitted.
Lawrence, G. A	Haddocks	Jones	1897
Lewis, F. L	Camilla	Mitchell	1897
Lewis, J. H	Graves	Terrell	1900
LeConte, J. N	Atlanta	Fulton	1900
Lee, Walter W	Gordon	Wilkinson	1897
LeHardy, J. C. (T., V.-P.)	Savannah	Chatham	1868
Liddell, J. A	Cedartown	Polk	1899
Little, Wm. J	Macon	Bibb	1898
Lockhart, B. W	The Glades	Hall	1899
Lockhart, V. D. (V.-P)	Mayesville	Banks	1891
Lokey H. M	Atlanta	Fulton	1900
Love, W. F	Crawford	Oglethorpe	1899
Loyd, R. C	Flat Creek	Fayette	1900
Lovvorn, J. L	Bowdon	Carroll	1894
Lovvorn, R. M	Bowdon	Carroll	1896
Lyle, W. C.	Augusta	Richmond	1896
Mann, John O	Elko	Houston	1899
McAfee, Jno. C	Macon	Bibb	1899
McArthur, Thos. J	Unadilla	Dooly	1897
McBath, W. L	Avalon	Franklin	1900
McCreary, H. L	Royston	Franklin	1899
McCurry, I. L	Toccoa	Habersham	1897
McDaniel, J. L	Atlanta	Fulton	1896
McDuffie, James H	Columbus	Muscogee	1893
McHatton, H. (C., V.-P.)	Macon	Bibb	1883
McIntosh, T M	Thomasville	Thomas	1874
McJunkin, J	Toccoa	Habersham	1898
McKinnon, J. K	White Oak	Camden	1895
McLean, J. L	Birdford	Tattnall	1897
McMaster, D. E	Tennille	Washington	1894
McMaster, H. B. (C., V.-P.)	Waynesboro	Burke	1888
McMath, J. F	Andersonville	Sumter	1897
McRae, A. B	Seville	Wilcox	1893
McRae, F. W	Atlanta	Fulton	1887
Mack, Alexander	Hawkinsville	Pulaski	1897
Mallory, R. A	Concord	Pike	1893
Maloy, W. C	Rhine	Dodge	1893
Malone, J. D	Marietta	Cobb	1891
Mangham, J. E	Reynolds	Taylor	1897
Marchman, H. R	Villa Rica	Carroll	1900
Mathis, A	Sandersville	Washington	1872
Matthews, M F	Athens	Clarke	1898
Matthews, S. M	Quitman	Brooks	1890

Name.	Post-office.	County.	Admitted.
Matthews, W. J.	Middleton.	Elbert	1892
Mayhew, James	Sutallee	Cherokee	1900
Means, W. A.	Hendrix	Upson	1899
Merrill, E. L.	Turin	Coweta	1900
Merritt, Thos. M	Calvary.	Decatur	1895
Miller, B. E.	Daisy	Tatnall	1899
Mims, S. W	Sylvania	Screven	1899
Minter, H. G	Jakin	Early	1900
Mitchell, T. Emerson	Columbus	Muscogee	1896
Mobley, H. A.	Byronville	Dooly	1891
Moncrief, W. Hal	Atlanta	Fulton	1900
Montgomery, A. J	Buff	Gordon	1900
Montgomery, R. O.	Atlanta	Fulton	1897
Montgomery, Chas. J.	Augusta	Richmond.	1895
Moorman, Ivy W.	Pekin	Irwin	1900
Moore, K. P (V.-P., P., S., O., T)	Macon	Bibb	1871
Moore, J. M.	Macon	Bibb	1897
Moreland, A. C.	Forsyth.	Monroe	1892
Moran, C. A.	Atlanta	Fulton	1895
Morgan, J. B. (V.-P., P.)	Augusta	Richmond	1891
Mosley, R. C	Tignall	Wilkes	1899
Moss, W. Hosea	Monroe	Walton	1897
Mountain, George W	Augusta	Richmond	1898
Munroe, Henry S	Americus	Sumter.	1893
Murphey, Eugene E.	Augusta	Richmond	1900
Neal, J. W	Scotland	Telfair.	1892
Neely, John C.	Herndon	Burke	1900
Nicolson, Wm. Perrin	Atlanta	Fulton	1883
Niles, George M	Marshallville	Macon	1893
Noble, G. H. (P)	Atlanta	Fulton	1883
Nolan, C. I	Marietta	Cobb	1899
Norton, Geo M.	Savannah	Chatham.	1899
Norton, W. E	Savannah	Chatham	1899
Nunn, R. J (C., V.-P., P.)	Savannah	Chatham	1867
O'Daniel, Mark H. (O., C., V.-P.)	Macon	Bibb	1882
O'Daniel, W. A. (O.)	Milledgeville	Baldwin	1886
O'Quinn, Jno. H	Augusta	Richmond	1900
Oertel, T. E	Augusta	Richmond	1900
Oliver, A. S.	Elberton	Elbert	1897
Olmstead, J. C.	Atlanta	Fulton	1886
Osborne, L. N	Canon	Franklin	1900

Name.	Post-office.	County.	Admitted.
Overstreet, Geo. M	Sylvania	Screven	1899
Owens, W. W	Savannah	Chatham	1891
Paige, John D	Savannah	Chatham	1892
Patten, W. L	Milltown	Berrien	1895
Patterson, J. C	Milledgeville	Baldwin	1894
Pattillo, Geo. R	Mayfield	Hancock	1899
Parks, W. B	Atlanta	Fulton	1882
Payne, A. L	Fort Lamar	Madison	1898
Payne, George F	Atlanta	Fulton	1894
Peacock, W. F	Vidalia	Montgomery	1899
Peete, C. H	Macon	Bibb	1893
Pendergrass, O. N	Monroe	Walton	1900
Perkinson, W. Howard	Woodstock	Cherokee	1900
Perry, A. C	Covington	Newton	1900
Perry, Thomas B	U.S. M. Hos. Ser.		
Peters, A. B	Moultrie	Colquitt	1897
Peterson, N	Tifton	Berrien	1897
Philips, S. Latimer	Savannah	Chatham	1890
Phillips, F. H	Harlem	Columbia	1899
Pierce, Geo. Y	Atlanta	Fulton	1900
Pilcher, W. W	Warrenton	Warren	1899
Pinckney, S. G. C	Atlanta	Fulton	1900
Pirkle, Jno. A	Monroe	Walton	1899
Pittman, S. S	Chipley	Harris	1900
Pla, J. M	Atlanta	Fulton	1897
Ponder, W. P	Forsyth	Monroe	1885
Powell, B. C	Villa Rica	Carroll	1896
Powell, John F	Kramer	Wilcox	1893
Powell, T. O. (P.)	Milledgeville	Baldwin	1867
Poer, J. M	West Point	Troup	1900
Prather, Wm. S	Americus	Sumter	1897
Purse, B. S	Savannah	Chatham	1895
Purse, M. A	Atlanta	Fulton	1894
Quillian, D. D	Athens	Clarke	1892
Quillian, H. P	Arp	Banks	1888
Quinn, C. T	Naylor	Lowndes	1893
Ray, Robt. L	Devereaux	Hancock	1899
Redding, Chas. D	Lindsay	Washington	1897
Redding, J. H	Waycross	Ware	1893
Reid, C. W	Pelham	Mitchell	1897
Reynolds, H. V	Marietta	Cobb.	1899
Reynolds, W. H	Lexington	Oglethorpe	1899

Name.	Post-office.	County.	Admitted.
Richardson, C. H.	Montezuma	Macon	1886
Richardson, E. H (o., c., v.-p.)	Atlanta	Fulton	1878
Ridley, F. M. (o., c., p.)	LaGrange	Troup	1887
Ridley, R. B.	Atlanta	Fulton	1887
Ripley, E. C.	Barnesville	Pike	1897
Rippard, J. C.	Waycross	Ware	1893
Roberts, J. B. (v.-p.)	Atlanta	Fulton	1875
Robinson, W. C.	Atlanta	Fulton	1897
Robinson, Gilman P.	Atlanta	Fulton	1899
Robison, W. R	Milledgeville	Baldwin	1899
Rogers, F. S	Coleman	Randolph	1900
Rogers, J. T.	Excelsior	Bulloch	1900
Rogers, J. W.	Reynolds	Taylor	1897
Rogers, W. T.	Coleman	Randolph	1893
Rowe, W. J	Buford	Gwinnett	1897
Rose, Jno. R.	Eastman	Dodge	1897
Ross, James T.	Macon	Bibb	1891
Rosser, J. P.	Atlanta	Fulton	1897
Roy, Dunbar	Atlanta	Fulton	1892
Roy, G. G.	Atlanta	Fulton	1878
Rudisill, B. F.	Forsyth.	Monroe	1887
Rudolph, J. B	Gainesville	Hall	1900
Rumble, S.	Goggins	Monroe	1891
Sanders, W. E.	Arlington	Calhoun	1899
Saunders, Jno. W.	Unadilla	Dooly	1897
Scarbrough, J. F	Ben	Dooly	1893
Scott, H. F. (o.)	Atlanta	Fulton	1879
Sessoms, W. C.	Moultrie.	Colquitt	1893
Shannon, John R	Cabaniss	Monroe	1893
Sharpe, L. J.	HarmonyGrove	Jackson	1898
Sharp, C. K	Arlington	Calhoun	1900
Sharp, W. B	Atlanta	Fulton	1900
Shorter, James H.	Macon	Bibb	1893
Sibbett, W. F	Douglas.	Coffee	1890
Sikes, J. A. B.	Iron City	Decatur	1899
Simmons, A. B.	Savannah	Chatham	1891
Sims, E. H.	Columbus	Muscogee	1892
Sims, F. H	Atlanta	Fulton	1897
Simpson, J. R.	Atlanta	Fulton	1894
Simpson, W. T.	Smithville	Lee	1892
Singleton, O. G.	Fort Valley	Houston	1892
Slack, Henry R	LaGrange	Troup.	1893

Name.	Post-office.	County.	Admitted.
Smiley, J. M	Atlanta	Fulton	1897
Smith, A. A. (V.-P., P.)	Hawkinsville	Pulaski	1875
Smith, B. F	Elberton	Elbert	1893
Smith, C. H	Ellaville	Schley	1893
Smith, S. J	Jefferson	Jackson	1897
Smith, K. A	Gainesville	Hall	1899
Smith, W. Monroe	Atlanta	Fulton	1900
Smith, J. C	Sand Hill	Carroll	1900
Smith, J. G	McDonough	Henry	1900
Smith, Claude A	Atlanta	Fulton	1900
Smith, H. M	Edgewood	DeKalb	1900
Smith, T. C	Downville	Whitfield	1900
Smith, A. C	Coldwater	Elbert	1899
Smith, J. M	Valdosta	Lowndes	1899
Smith, K. A	Gainesville	Hall	1899
Sommerfield, J. E	Atlanta	Fulton	1899
Sorrells, R. P	Danielsville	Madison	1887
Spence, J. M., Jr	Waresboro	Ware	1890
Spence, I. N. B	Social Circle	Walton	1897
Spinks, R. N	Cedartown	Polk	1900
Spratling, Edgar J	Forsyth	Monroe	1900
Standifer, W. B.,	Blakely	Early	1886
Stapler, M M	Macon	Bibb	1897
Stapleton, John L	Pronwood	Terrell	1897
Statham, J. R	Americus	Sumter	1900
Stephens, L. P	Atlanta	Fulton	1888
Stewart, W. W	Columbus	Muscogee	1892
Stirling, A. W	Atlanta	Fulton	1896
Stockard, C. C	Atlanta	Fulton	1896
Story, J. W	Dennard	Houston	1897
Story, Warren L	Sycamore	Irwin	1897
Stovall, C. T	Vienna	Dooly	1897
Stovall, A. S. J	Elberton	Elbert	1886
Stow, M. N	Mineral Bluff	Fannin	1900
Strickland, H. C	Mayesville	Banks	1900
Strickler, C. W	Atlanta	Fulton	1900
Stubbs, Geo. H	Lithia Springs	Douglas	1897
Sullivan, J. S	Macon	Bibb	1893
Summey, Chas. L	Stone Mountain	DeKalb	1897
Tankersley, J. S	Ellijay	Gilmer	1894
Tate, William B. (V.-P.)	Tate	Pickens	1890
Taylor, A. P	Thomasville	Thomas	1873
Taylor, R. H. (V.-P., S.)	Griffin	Spalding	1879
Terrell, W. W	Douglas	Terrell	1897

Name.	Post-office.	County.	Admitted.
Terrell, Henry W	LaGrange	Troup	1900
Tessier, L. P	Augusta	Richmond	1898
Terry, W. R	Leary	Calhoun	1897
Thomas, J. M	Griffin	Spalding	1894
Thomas, L. J	Dublin	Laurens	1900
Thomas, D. L	Eatonton	Putnam	1900
Thomas, D. A. N	Jersey	Walton	1900
Thomson, Ralph M	Meldrim	Effingham	1899
Thompson, P. H	Bluffton	Clay	1886
Thrash, E. C	Oakland	Meriwether	1899
Thrasher, T. H	Ashburn	Worth	1899
Todd, J. S. (o., c., p.)	Atlanta	Fulton	1872
Toole, John E	Bainbridge	Decatur	1900
Travis, W. D	Covington	Newton	1893
Trotter, R. W	Madison	Morgan	1894
Trimble, G. C	East Point	Fulton	1891
Tucker, W. B	Chipley	Harris	1897
Turk, F. U	Stilesboro	Bartow	1899
Turner, W. J	Ashburn	Dooly	1897
Tyson, J. D	Adrian	Emanuel	1893
Van Goidtsnoven, E	Atlanta	Fulton	1887
Van Horne, J. T	Monroe	Walton	1892
Vickers, T. E	Harrison	Washington	1899
Visanska, S. A	Atlanta	Fulton	1900
Walker, C. E	Sycamore	Irwin	1899
Walker, J. B	Lawrenceville	Lawrence	1889
Walker, J. L	Waycross	Ware	1892
Walker, T. D	Cochran	Pulaski	1897
Wall, Chas. D	Columbus	Muscogee	1899
Wall, J. M	Laurens Hill	Laurens	1900
Wahl, F	Savannah	Chatham	1900
Walton, J. H	Dublin	Laurens	1898
Ward, J. A	Richwood	Dooly	1897
Ware, J. E H	Kedron	Fayette	1900
Watson, G. B	Acree	Worth	1897
Weaver, J. A	Buena Vista	Marion	1890
Weaver, J. D	Eatonton	Putnam	1894
Weaver, J. L	Baxley	Appling	1890
Weaver, O. H	Macon	Bibb	1899
Webb, J. F	Monticello	Jasper	1897
Weddington, J. L	Dublin	Laurens	1900
Welchel, Henry C	Dahlonega	Lumpkin	1900
Wells, James R	Stone Mount'n	DeKalb	1900

Name.	Post-office.	County.	Admitted.
Westbrook, G. W	Ila	Madison	1898
Westmoreland, W.F. (o., P)	Atlanta	Fulton	1886
Westmoreland, J. W	Atlanta	Fulton	1897
Welchel, C. C	Comer	Madison	1891
Welchel, John E	Gillsville	Hall	1891
Whaley, Wm. S	Athens	Clarke	1900
Whipple, W. H	Macon	Bibb	1897
Whitaker, J. M	Milledgeville	Baldwin	1883
Whitehead, A. G. (v-P., P)	Waynesboro	Burke	1861
Wilcox, G. A	Augusta	Richmond	1896
Wiley, R. C	Sparta	Hancock	1897
Wilkie, P. E	Colquitt	Miller	1897
Williams, W. J	Pembroke	Bryan	1897
Williams, W. P	Blackshear	Pierce	1890
Williams, H. J. (o., c., P.)	Macon	Bibb	1883
Williams, A. W	Gainesville	Hall	1899
Wills, T. J	Washington	Wilkes	1889
Wilmerding, W. E	Atlanta	Fulton	1900
Wilkins, John G	Atlanta	Fulton	1900
Wilson, John Calhoun	Pearson	Coffee	1899
Wimberly, Warren W	Adams' Park	Twiggs	1899
Wimberly, John S	Sunlight	Stewart	1891
Winchester, W. R	Macon	Bibb	1883
Wise, B. T	Plains	Sumter	1893
Wood, C. V	Cedartown	Polk	1900
Wolff, Bernard	Atlanta	Fulton	1894
Wooten, Louis O	Unadilla	Dooly	1897
Wright, Thos. R	Augusta	Richmond	1880
Wright, J. E	Macon	Bibb	1899

NON-RESIDENTS.

Buford, O. H	Fort St. Phillip	Louisiana	1891
Duncan, J. W	Knoxville	Tennessee	1883
Gann, Dewell	Benton	Arkansas	1887
Prather, W. B	Seale	Alabama	1894

HONORARY LIST.

This list is designed for aged, retired, or infirm members of the Association, who are entitled to all the privileges of the Association without the payment of dues.

The Secretary would be obliged to members to report any names that should go on this list.

Name.	Post-office.	County.	Admitted.
Alexander, J. F. (P., C., V.-P.)	Atlanta	Fulton	1849
Battle, H. L.	Wadley	Jefferson	1891
Bardwell, E L	Talbotton	Talbot	1872
Bell, A. A	Madison	Morgan	1858
Brantley, F. M	Senoia	Coweta	1849
Brawner, W. M	Lexington	Oglethorpe	1883
Calhoun, F. R. (V.-P.)	Cartersville	Bartow	1873
Colding, C. H	Savannah	Chatham	1882
Coleman, J. T	Perry	Houston	1851
Dudley, M. J	Sonoraville	Gordon	1880
Griggs, A. W. (O., V.-P., C., P.)	West Point	Troup	1866
Hopkins, T. S.	Thomasville	Thomas	1865
Hoyt, W. D	Rome	Floyd	1872
Jones, W. L	Atlanta	Fulton	1849
Le Conte, Joseph	Berkeley, Cal.	———	1849
McDonald, C. M	Leesburg	Lee	1892
Maddox, W. D	Monticello	Jasper	1849
Nesbit, D. B	Eatonton	Putnam	1894
Quarterman, K. A	Walthourville	Liberty	1885
Read, J. B	Savannah	Chatham	1851
Redding, C. F	Zebulon	Pike	1849
Smith, C. D	Atlanta	Fulton	1894
Smith, J. B	Perry	Houston	1871

IN MEMORIAM.

☞ SPECIAL REQUEST TO EVERY MEMBER.—The Secretary *earnestly requests each member of the Association* to aid him *in filling* THE BLANKS in the following Roll of Deceased Members *by making the necessary inquiries* in their respective cities and counties, *and writing him at once* on obtaining the desired information.

Name.	Post-office.	County.	Admitted.	Died.
Adams, C. B	Augusta	Richmond	1868	1875
Alexander, J. R	Cave Springs	Floyd	1849	
Alexander, L. B	Forsyth	Monroe	1877	1891
Alfriend, E. W. (V.-P.)	Albany	Dougherty	1852	1886
Armstrong, W. S	Atlanta	Fulton	1886	1896
Arnold, R D. (V.-P., P.)	Savannah	Chatham	1849	1876
Ashworth, A. B. (S.)	Atlanta	Fulton	1887	1889
Avary, J. C	Decatur	DeKalb	1859	1873
Baker, A. H	Augusta	Richmond	1876	1891
Ballinger, M. R	Floyd Springs	Floyd	1860	1886
Banks, J. T. (V.-P., P.)	Griffin	Spalding	1858	1880
Barkwell. T. J	Hawkinsville	Pulaski	1859	
Barnett, J. W	Raytown	Taliaferro	1880	1890
Battey, Robert (C., P.)	Rome	Floyd	1859	1895
Battle, H. L	Russellville	Monroe	1849	
Beasley, J. A	West Point	Troup	1819	1897
Bell, T. W	Busbyville	Houston	1853	
Bignon, H. A	Augusta	Richmond	1852	1870
Billing, S. A	Columbus	Muscogee	1855	1872
Bizzell, W. D. (V.-P.)	Atlanta	Fulton	1882	1890
Black, R. C. (T.)	Augusta	Richmond	1852	1860
Bomar, B. F	Atlanta	Fulton	1859	
Borcheim, L. E	Atlanta	Fulton	1886	1887
Boswell, S. J. (V.-P.)	Columbus	Muscogee	1855	
Bosworth, Don B	Atlanta	Fulton	1894	1898
Bothwell, D. J	Vienna	Dooly	1849	
Bozeman, J. F	Atlanta	Fulton	1855	1877
Boring, John M. (V.-P.)	Atlanta	Fulton	1856	1891
Boyd, Montague L	Savannah	Chatham	1889	1897

Name.	Post-office.	County.	Admitted.	Died.
Brandon, D. S	Thomasville	Thomas	1873	1878
Brantley, S. D	Sandersville	Washingt'n	1849	1897
Broadhurst, W. W	Augusta	Richmond	1852	1861
Brooks, C. A	Americus	Sumter	1888	1894
Brown, S. E	Eatonton	Putnam	1890	1896
Bruce, R. J	Thomasville	Thomas	1874	1878
Bunn, William	Wilna	Houston	1854	
Burgess, Wm. R. (T., O.)	Macon	Bibb	1870	1878
Burney, S. W. (P.)				1876
Campbell, Robert	Augusta	Richmond	1849	1885
Carroll, J. C	Laurens Hill	Laurens	1857	1870
Carroll, R. C	Augusta	Richmond	1873	1882
Carter, C. J	Lake Park	Lowndes	1889	1893
Castlen, F. G	Macon	Bibb	1867	1874
Carlton, J. M	Athens	Clarke	1882	1883
Cason, E. A	LaGrange	Troup	1897	1897
Charlton, T. J. (C.)	Savannah	Chatham	1862	1886
Charters, W. M. (P.)	Savannah	Chatham	1851	1883
Chase, D. S	Augusta	Richmond	1862	
Cickey, D. C	Macon	Bibb	1894	1896
Clark, B. J	Barnesville	Pike	1896	1898
Clark, S. B	Rich. Factory	Richmond	1852	
Campbell, H. F. (O., V.-P., P.)	Augusta	Richmond	1851	1892
Coe, J. N	Flat Rock	Pike	1856	
Colding, C. H.	Savannah	Chatham	1882	1894
Coleman, John S	Augusta	Richmond	1891	1892
Colley, F. S. (P.)	Monroe	Walton	1856	
Cooper, G. F. (O., S., V.-P.)	Americus	Sumter	1849	1882
Copeland, A. B	Hamilton	Harris	1878	1882
Cornwall, G. H	Hillsboro	Jasper	1854	
Crawford, S. S	Augusta	Richmond	1857	
Crump, E. D	Herndon	Burke	1872	1881
Cumming, H. M	Augusta	Richmond	1862	1887
Cunningham, L. S	Big Creek	Forsyth	1859	1862
Cunningham, W. D	Jasper	Pickens	1859	1866
D'Alvigney, N	Atlanta	Fulton		1877
Davenport, C. W	Point Peter	Oglethorpe	1852	
Davenport, H. S	Calhoun	Gordon	1859	
Davis, W. L	Albany	Dougherty	1849	
Deadwyley, M. P. (V.-P.)	Elberton	Elbert	1868	1895
Dean, S. H	Conyers	Rockdale	1856	
Dearing, W. E	Augusta	Richmond	1852	1867
DeCortez, C. A	Savannah	Chatham	1872	
Dickinson, J. T	Albany	Dougherty	1857	

Name.	Post-office.	County	Admitted	Died.
Dickinson, R. Q. (V.-P., P.)	Albany	Dougherty	1850	
Divine, K. C	Atlanta	Fulton	1882	1899
Dobbins, W. O	Fort Gaines	Clay	1883	1890
Doster. B. R., Jr	Blakely	Early	1896	1899
Doughty, Henry Campbell	Augusta	Richmond	1896	1899
Dugas, L. A. (P.)	Augusta	Richmond	1852	1884
Dupree, L. J	Camilla	Mitchell		1890
Engram, R. O	Montezuma	Macon	1881	1893
Eve, Joseph A	Augusta	Richmond	1852	1886
Eve, S. C	Augusta	Richmond	1868	1884
Felder, W. L	Augusta	Richmond	1857	1867
Fish, J. D. (T.)	Savannah	Chatham	1875	1879
Fitzgerald, E	Macon	Bibb	1882	1885
Ford, L. D. (P.)	Augusta	Richmond	1849	1884
Fort, Moses T	Hawkinsville	Pulaski	1859	1878
Freeman, S. H	Dacula	Gwinnett	1891	1897
Franklin, M. A	Macon	Bibb	1849	1858
Frazier, W. M	Hawkinsville	Pulaski	1850	
Gaither, Henry	Oxford	Newton	1851	1890
Gaither, B. T	Oxford	Newton	1852	1853
Gardner, J. W	Augusta	Richmond	1857	
Gilmer, Wm. B	Macon	Bibb	1893	1899
Girardy, Edward	Augusta	Richmond	1852	1859
Gordon, J. M	Savannah	Chatham	1849	
Gray, Jas. A. (S.)	Atlanta	Fulton	1882	1887
Gray, S. H	Barnesville	Pike	1871	1885
Green, A. B	Pond Town	Sumter	1849	
Green, H. K	Macon	Bibb	1849	1867
Green, Thomas F	Milledgeville	Baldwin	1849	1879
Gregory, J. D		Sumter	1849	
Griffin, C. F	Cassville	Bartow	1888	1893
Griggs, R. E	Columbus	Muscogee	1892	1897
Grimes, T. W	Columbus	Muscogee	1855	1882
Habersham, J. C	Savannah	Chatham	1853	
Habersham, J. C., Jr. (V.-P)	Savannah	Chatham	1866	1881
Habersham, S. E	Eatonton	Putnam	1870	
Hagan, Hugh	Atlanta	Fulton	1892	1898
Hallum, J. W	Carrollton	Carroll	1891	1895
Hammond, D. W. (V.-P., C.)	Macon	Bibb	1857	1887
Harden, W. P	HarmonyGr've	Jackson	1852	1885
Harrell, W. J	Bainbridge	Decatur	1874	1881
Harris, S. N. (V.-P)	Savannah	Chatham	1851	1854

Name.	Post-office.	County.	Admitted.	Died.
Harris, N. O	Atlanta	Fulton	1887	1896
Harris, Juriah (o., v.-p.)	Savannah	Chatham	1852	1876
Harrison, Gabriel	Macon	Bibb		1862
Hart, A. C	Waynesboro	Burke	1852	
Hatch, Milo G. (c.)	Tennille	Washington	1883	1897
Hatchett, J. M	Fort Gaines	Clay	1892	1892
Havis, M. W	Perry	Houston	1854	1890
Hawes, E. C	Appling	Columbia	1852	
Hawkins, S. B	Americus	Sumter	1871	1892
Heard, T. O	Griffin	Spalding	1867	
Hendrick, J. B	Covington	Newton	1857	1881
Henry, G. C	West Point	Troup	1872	
Hook, E. B	Augusta	Richmond	1857	1862
Houston, J. P. R	Savannah	Chatham	1873	1892
Howell, Dan H. (s.)	Atlanta	Fulton	1878	1899
Hoxey, Thomas	Columbus	Muscogee	1849	1853
Hollingsworth, W. T	Madison	Morgan	1857	1893
Holmes, G. W. (v.-p., p., c.)	Rome	Floyd	1867	1890
Holmes, T. M. (o.)	Rome	Floyd	1883	1891
Hamilton, J. L	Stone Mount'n	DeKalb	1859	1890
Hunter, E. H. W	Louisville	Jefferson	1867	1883
Ingraham, E. P	Albany	Dougherty	1870	1873
Irvine, Robert	Augusta	Richmond	1880	1881
Johnson, C. W	Macon	Bibb	1870	1875
Johnson, John M	Atlanta	Fulton	1866	1886
Jones, B. O	Atlanta	Fulton		
Jones, J. W	Atlanta	Fulton	1857	1871
Jowers, Clebe	Americus	Sumter	1897	1897
Kennedy, L. P	Atlanta	Fulton	1890	1892
Kennebrew, Henry	Athens	Clarke	1883	1886
Kirkscey, E. J. (v.-p.)	Columbus	Muscogee	1871	1877
Kollock, P. M. (p.)	Savannah	Chatham	1852	1872
Lamar, T. R. (v.-p.)	Macon	Bibb	1849	1859
Lockhart, R. H	Columbus	Muscogee	1855	1859
Lattimer, C. T	Macon	Bibb	1889	1889
Lawrence, L. L	Blountsville	Jones	1889	1890
Leitner, C. B	Columbus	Muscogee	1852	1897
Lightfoot, W. S	Macon	Bibb	1849	1864
Long, Crawford W	Athens	Clarke	1849	1878
Logan, J. P. (p.)	Atlanta	Fulton	1858	1891
Love, Wm. Abram, (v.-p.)	Atlanta	Fulton	1866	1898
Lumpkin, George	Maxey's Depot	Oglethorpe	1859	

Name.	Post office.	County.	Admitted.	Died.
Lumpkin, S. P	Watkinseville	Clarke	1859	
Mackie, J. D	Augusta	Richmond	1852	1854
Maffit, R. G. W	Dalton	Whitfield	1859	
Martin, J. D	Savannah	Chatham	1894	1898
Matthews, W. B	Fort Valley	Houston	1884	1885
McBride, W. G	Oconee	Washington	1850	1873
McDowell, J. M	Barnesville	Pike	1887	1891
McGolrick, R	Macon	Bibb	1849	1853
McKinley, C. A	Newnan	Coweta	1859	
McMillen, J. E	Columbus	Muscogee	1872	1883
Means, A. (V.-P.)	Oxford	Newton	1851	1883
Means, O. S	Oxford	Newton	1857	
Meiere, Wm. S	Madison	Morgan	1857	
Milam, R. J	Fairburn	Campbell	1882	1882
Miller, H. V. M	Atlanta	Fulton	1851	1896
Morrison, D. H	Savannah	Chatham	1868	1869
Mulligan, G. W. (V.-P., P.)	Washington	Wilkes	1883	1897
Musgrove, W. C. (C., S.)	Midville	Burke	1849	1876
Nash, R. A	Marion	Twiggs	1849	
Nisbet, R. H	Eatonton	Putnam	1854	1873
Noell, S. G	Ypsilanti	Talbot	1892	1892
Nottingham, C. B. (S., T., C., P.)	Macon	Bibb	1849	1875
Nunn, R. M	Savannah	Chatham	1871	1873
O'Daniel, William (T., P.)	Bullard	Twiggs	1870	1900
Ogilby, H. J. (V.-P)	Madison	Morgan	1849	1878
O'Keefe, D. C. (S.)	Atlanta	Fulton	1852	1871
Orme, L. H. (S.)	Atlanta	Fulton	1866	1872
O'Sullivan,——	Cork	Lee	1849	
Owen, J. D		Baldwin	1850	
Parsons, J. M	Russellville	Monroe		
Perdue, H	Barnesville	Pike	1889	1896
Pitts, G. W	Star	Butts	1859	
Poore, J. J	Monroe	Walton	1894	1896
Posey, J. F	Savannah	Chatham	1851	
Powell, T. S. (V.-P.)	Atlanta	Fulton	1857	1896
Pringle, W	Covington	Newton		
Ragan, Isham H	Palmyra	Lee	1856	
Raines, Thomas	Atlanta	Fulton	1872	1883
Raines, T. L	Atlanta	Fulton	1882	1884
Rauschenberg, Christian	Atlanta	Fulton	1861	1878
Richardson, C. P	Savannah	Chatham	1851	1853
Ridley, R. A. T. (V.-P.)	LaGrange	Troup	1859	1871

Name.	Post-office	County.	Admitted.	Died.
Robertson, J. J	Washington	Wilkes	1852	1872
Roddy, R. L. (V.-P.)	Forsyth	Monroe	1849	1878
Ruffin, W. R	Augusta	Richmond	1852	
Russell, W. J	Lawrenceville	Gwinnett	1861	
Ryan, T. D. L	Hawkinsville	Pulaski	1859	1876
Stafford, S. J	Madison	Morgan	1856	1859
Searcy, D. B	Bolingbrook	Monroe	1849	1885
Shropshire, J. W			1871	
Simmons, J. N	Atlanta	Fulton	1850	1871
Simmons, J. S	Gainesville	Hall	1873	1881
Simmons, S. B	Augusta	Richmond	1852	1867
Simmons, T. A	Irwinton	Wilkinson	1871	1871
Slaughter, J. T	Villa Rica		1851	1889
Smith, A. D	Montezuma	Macon	1871	
Smith, C. W	Jonesboro	Clayton	1859	
Smith, Hiram	Augusta	Richmond	1876	1888
Smith, H. H	Augusta	Richmond	1886	1887
Smith, R. M. (C.)	Athens	Clarke		1879
Smith, Thomas	Savannah	Chatham	1858	1876
Spier, W. A	Grantville	Coweta	1859	
Stallings, J. D	Preston	Webster	1871	
Stanford, F. A	Columbus	Muscogee	1849	1885
Starr, E. P	Savannah	Chatham	1868	1873
Steele, H	Knoxville	Crawford	1849	
Steele, R. T	Fairburn	Campbell	1849	
Steiner, H. H	Augusta	Richmond	1857	1892
Stephens, W. B	Forsyth	Monroe	1849	
Sterling, W. L	Atlanta	Fulton	1878	1894
Stewardson, Thomas	Savannah	Chatham	1849	
Stone, Geo. H	Savannah	Chatham	1875	1899
Stovall, G. M	Elberton	Elbert	1894	1894
Stozier, L. L	Albany	Dougherty	1867	
Strother, W. A	Albany	Dougherty	1867	1896
Sutton, C. B		Lee	1856	
Taliaferro, V. H. (V.-P.)	Atlanta	Fulton	1857	1887
Taylor, E. T	Columbus	Muscogee	1855	
Taylor, J. P	Haralson	Coweta	1859	1897
Taylor, R. N	Hawkinsville	Pulaski	1850	
Thomas, J. G. (V.-P., P., C., T.)	Savannah	Chatham	1867	1885
Thompson, Chas	Macon	Bibb	1849	1854
Thompson, Wm. L	Pitts	Wilcox	1897	1898
Trammell, A. A	Forsyth	Monroe	1856	
Tucker, O. W	Brunswick	Glynn	1890	1891

Name.	Post-office.	County.	Admitted	Died.
Underwood, J. B	Cave Spring	Floyd	1860	1881
Van Meter, J. N	Euharlee	Bartow	1879	1881
Wall, W. W	Calhoun	Gordon	1860	
Walker, T. F	Cochran	Pulaski	1853	1888
Walker, F	Macon	Bibb	1889	1891
Ware, A. E. O			1859	
Waring, J. J	Savannah	Chatham	1853	1888
Watson, W. A	Jefferson	Jackson	1883	1889
Wells, C. H	Savannah	Chatham	1853	1854
Wells, W. B	Chattanooga	Tennessee	1873	1891
Wells, Charles (P.)	Perry	Houston	1849	
West, C. W	Savannah	Chatham	1853	1859
Westmoreland, W. F. (P.)	Atlanta	Fulton	1856	1890
Wethington, R. T	Thomasville	Thomas	1884	1887
White, S. G. (V.-P.)	Milledgeville	Baldwin	1868	1877
Whitlock, Isaac W	Washington	Wilkes	1852	1853
Wile, Henry	Atlanta	Fulton	1886	1887
Wiley, J. B	Macon	Bibb	1849	
Williams, T. L		Dooly	1849	
Williams, W. L	Fayetteville	Fayette	1873	
Willingham, Willis	Lexington	Oglethorpe	1849	1872
Winchester, E. A	DeSoto	Sumter	1893	1897
Winn, G. A	Bolingbroke	Monroe	1849	1862
Wirsen, G. F	Rutledge	Morgan	1871	1884
Woodson, C. T	Wilna	Houston	1854	
Wooten, W. H	Lexington	Oglethorpe	1852	1860
Word, T. J	Rome	Floyd	1887	1890
Word, R. C	Atlanta	Fulton	1855	1890
Wragg, J. A	Savannah	Chatham	1853	
Wright, P. H	Macon	Bibb	1869	1888
Yonge, Easton	Savannah	Chatham	1880	

2 GAL 318